

AUTOMOTIVE INDUSTRIES

Volume 55
Number 23

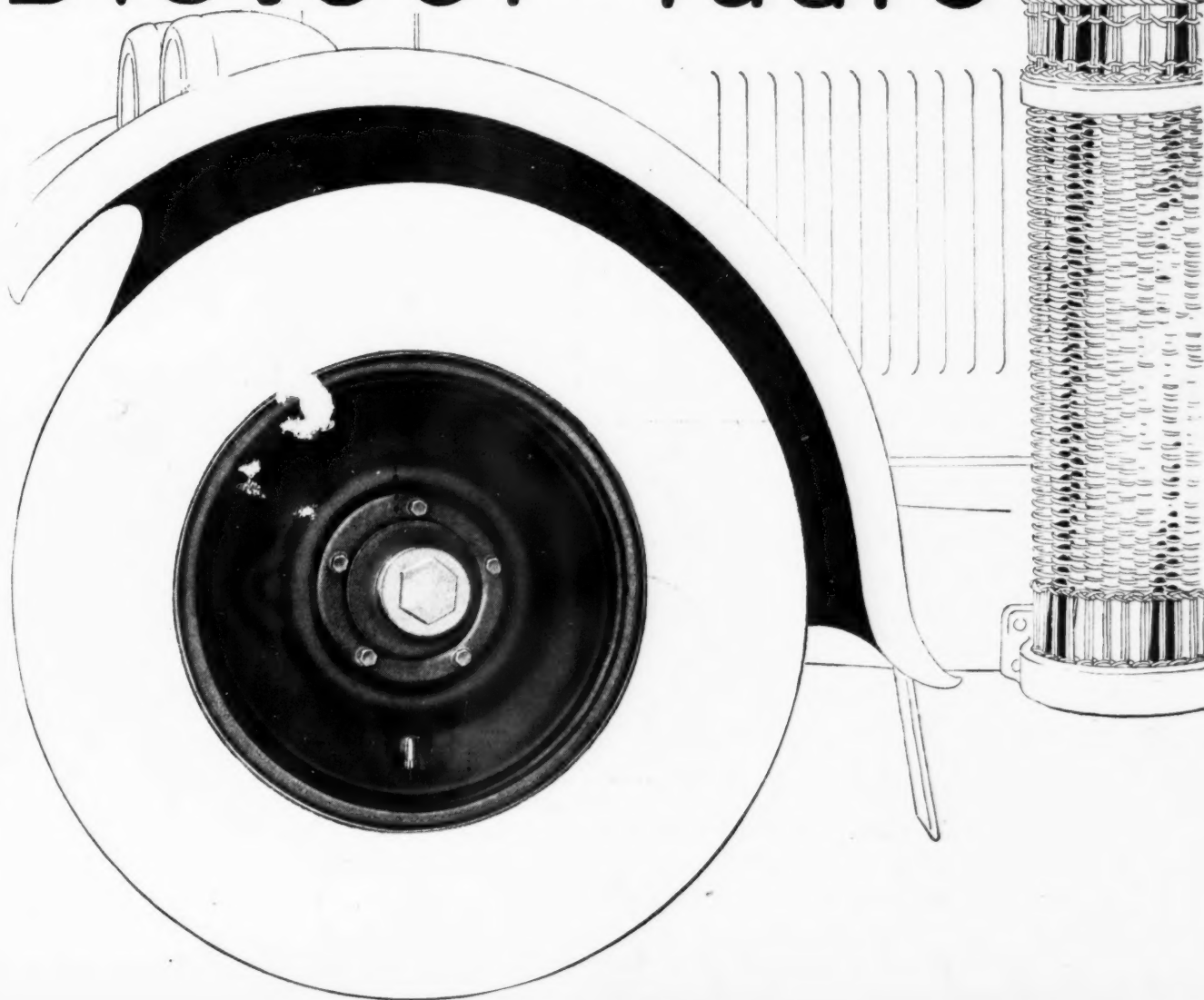
PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS
PHILADELPHIA, DECEMBER 2, 1926

35c a copy
\$3.00 a year

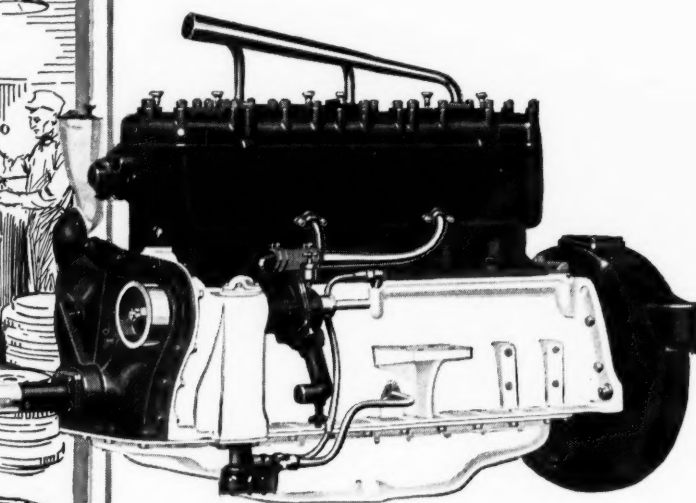
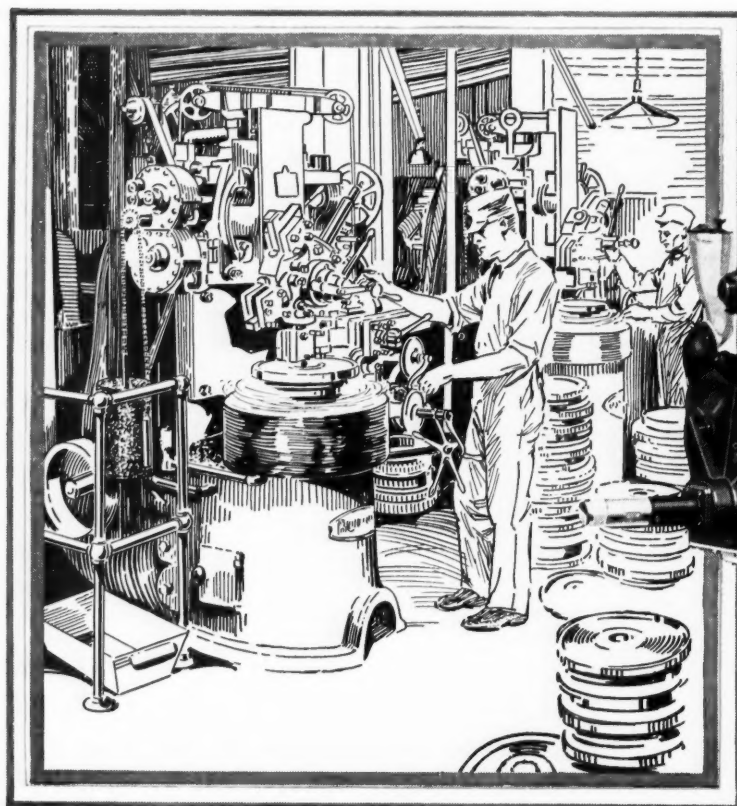
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Experience proves engineering methods best cure for traffic ills. Situation as a whole is improving.

By John C. Long

Secretary, Street Traffic Committee, National Automobile Chamber of Commerce

AT a recent conference concerned with traffic and safety one of the delegates said, "We must emphasize the dark side of this situation. That is the only way to get public attention."

On the other hand, one meets individuals who say, "Organizations ought not to put out discouraging statements lest the public feel that its efforts are hopeless."

This selection of emphasis, this attempt to present figures in one way or another, having in mind the presumable reaction of the public, has led to a confusion of tongues, so that out of the welter of reports on this subject it is difficult for the bystander to realize what is going on.

The effort to present the news from a particular angle to get a given effect is often honestly intended, and to some degree is necessary, because the public wants quick headline statements. The keynote thoughts of this article, for instance, are: The traffic situation is improving; cities having traffic engineers are getting results; school education is reducing fatalities; 1926 or 1927 may bring a turn in the tide. Yet those statements given baldly either mean little, or may be entirely misleading if stated without qualifications.

A good part of the trouble with our headline reading, writing, and thinking is due to the fact that it is the qualifying phrases of thoughts which complete the meaning and give validity. A headline may be compared to Cyrano de Bergerac's nose, significant, perhaps even dominating, and yet a very incomplete picture of the man himself.

This extended comment on the danger of reaching quick and desired conclusions is presented because this error has been particularly manifest

in many discussions of traffic conditions in the past.

Looking at the matter over the long range, taking into consideration the cities which are putting the most effort into the problem, and recognizing the accumulation of knowledge which is developing on this subject, it may be said with reasonable assurance that the congestion problem is being met and that human life is better protected.

The difficulty in the situation is that it is made up of a great number of local problems, so that the outlook in one city may be quite dark, while in another much may have been ac-



Traffic at a busy corner in Chicago

complished. The same thing is true as between city and state.

In 1925 the accident figures in the cities showed signs of receding, while in most rural regions the record was much worse.

The Bureau of the Census has been pointing out how in each month of 1926 the number of motor deaths has been increasing. On the other hand, for most of the months of the year the total was lower than the corresponding month of the year before. Further, the figures about which there is so much discussion in most cases include only those cities having 100,000 population or over.

Last year when the National Automobile Chamber of Commerce made its annual survey endeavoring to cover both rural and city figures, it became clear that these cities of 100,000 population did not represent a typical cross section of the country. They probably are the best available index that can be used on a monthly basis, together with two or three state records which can be secured in this way, but it is always wise to suspend judgment on the year until the returns are fully in.

First of all, it is important to keep in mind that safety is one aspect of traffic. If traffic were always properly operated there would be no trouble.

The basic avenue of approach then is to make streets and highways as fool-proof as possible.

Second, it is worthwhile to realize that all this ballyhoo about the rising tide of accidents is not worth much. We all indulge in it. We all hope that by pointing with alarm to a particular situation we may arouse the public to action. But as far as we can learn anything from the experience of communities, results have come from an engineering approach to the subject rather than from the dramatic approach. Possibly the evangelism of crying out the lamentable facts may have made support possible for the engineering program. But I am not sure that that is the case.

If we study the records of the larger cities there seems to be tangible evidence of the value of traffic commissions and the engineering method. Los Angeles, for instance, presents one of the most conspicuous examples of successful control of its accident problem. Its total fatalities for the first nine months during the past several years were as follows:

1923	166
1924	195
1925	167
1926	167

When one realizes that during each period the population and vehicular registration of the city were increasing, and that the total of mortalities this year has been held down to virtually the total of four years ago, there is evidence of some accomplishment.

What happened was that when the accident situation began to run wild in that city the authorities engaged Dr. Miller McClintock, now of the Albert Russell Erskine Foundation, to analyze the situation and recommend a city ordinance of rules and regulations and a program of engineering changes. Immediately following the adoption and indorsement of the new ordinance the fatality totals began to decline.

Scientific study, to be sure, often is not an immediate panacea. Science proceeds largely by the trial and error method. Take the history of Detroit for the same period as Los Angeles:

1923	174
1924	211
1925	223
1926	255

In Detroit there has been put forth not only a large amount of engineering attention to this problem but also an overwhelming quantity of publicity and education in the schools. Recently this city has reorganized its traffic system, and perhaps this time will find a better result.

Some attribute Detroit's large totals to the rapid increase of vehicles, some to the proximity of Canada, and some to the large foreign population. But whatever the cause, in spite of sincere effort and the attention of the ablest men available, the record is not yet yielding to control.

The Chicago record is worth noting:

1923	395
1924	383
1925	448
1926	473

Chicago has recently called in Dr. McClintock to work out a plan of salvation and it will be interesting to see the results.

Cleveland is going to remove some of the bottle-necks which back up its vehicles and create congestion, especially during the rush hours. The Cleveland record is:

1923	133
1924	139
1925	160
1926	174

The Cleveland Automobile Club has made a valiant effort to stem the tide in that city and it is expected that when various recommendations have been put into effect the results will be gratifying.

The records for Washington, D. C., are the most convincing of all:

1923	57
1924	70
1925	55
1926	53

Here is a definite reduction in the face of increased registrations. The improvement followed the appointment of a traffic director in the city of Washington supported by officialdom and public opinion. The achievements which have been made in that city may be credited directly to the efforts of Director Eldredge and Colonel Moller, his associate. The experience of this city shows that the problem is one which can be handled under the right circumstance.

The chief issue which the future will have to face is whether or not there is an inevitable average automobile death rate.

While Los Angeles is doing a good job and Washington has made a reduction, our cities, the public, industry and particularly the engineers will be faced with the question of whether the automobile is to be regarded permanently in a class with tuberculosis, pneumonia, or typhoid fever.

When this situation becomes evident, if it does persist, then drastic measures will be taken, not, I believe, along restrictive lines, but in the rapid building of grade separations, through boulevards, and other similar facilities.

Of the fatalities reported so far this year, three-quarters were cases where the motor vehicle struck a pedestrian. The question of negligence will be debated, but the fact seems clear that grade separation between vehicle and pedestrian is as important as the grade-crossing problem between railroad and highway.

If we have elevated or depressed cross-streets, with

sidewalks, every few blocks, that will help to meet the situation.

On the human side much is being accomplished through the education of the children in the public schools. They are taught how and why traffic operates, why it is that a citizen either on foot or at the wheel should obey the city ordinances, and the result of this training has been to secure reduction in child fatalities in a great number of centers where safety education has been thoroughly adopted.

Now, what is the conclusion of the whole matter? Not a simple one.

The situation is hopeful as there are, in various parts of the nation, specific cities and communities which are reducing their motor fatalities. The available data for this year as compared with last year indicate that the figures will not be much higher than in 1925 if they are any higher. Totals for the first nine months of 1926 for comparable areas are 4260 compared with 4144 in the same period of 1925.

It is altogether possible that the accident factor will be minimized very rapidly in the next two or three years

At Mid-Channel

WE stand today virtually at mid-channel," says Mr. Long, in summing up the traffic situation. "The foes of recklessness and indifference have built up resistances strong enough to form a bulwark against the accident and congestion tides.

"I do not believe that the increase in registration in the future will augment the problem, because the main job of getting engineering attention and method into the picture has been accomplished.

"From now on it is a matter of carrying on the war along all fronts so that facilities will be improved and the chances for foolhardiness minimized."

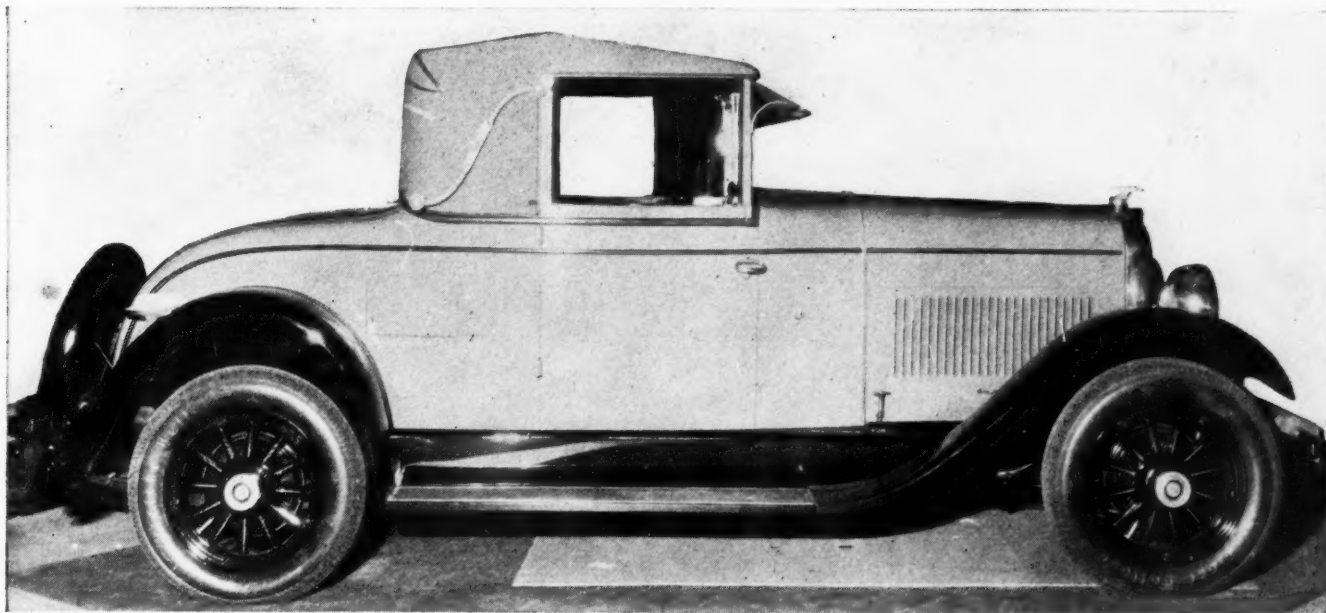
by attention to the relief of congestion. The "pocket nerve" and the "inconvenience nerve" are factors which arouse people to action quicker than anything else. The human ego can endure tragedies, perhaps because they have the gloss of romance, but he will not stand for inconvenience and monetary loss.

Traffic delays are inconvenient and costly. Automobile dealers and makers say that they are losing sales because of city congestion. Motorists are more and more irked at the delays of traffic. These forces, probably even more than the forces of

safety, will result in the appointment of traffic engineers in our city administrations with the power to get results.

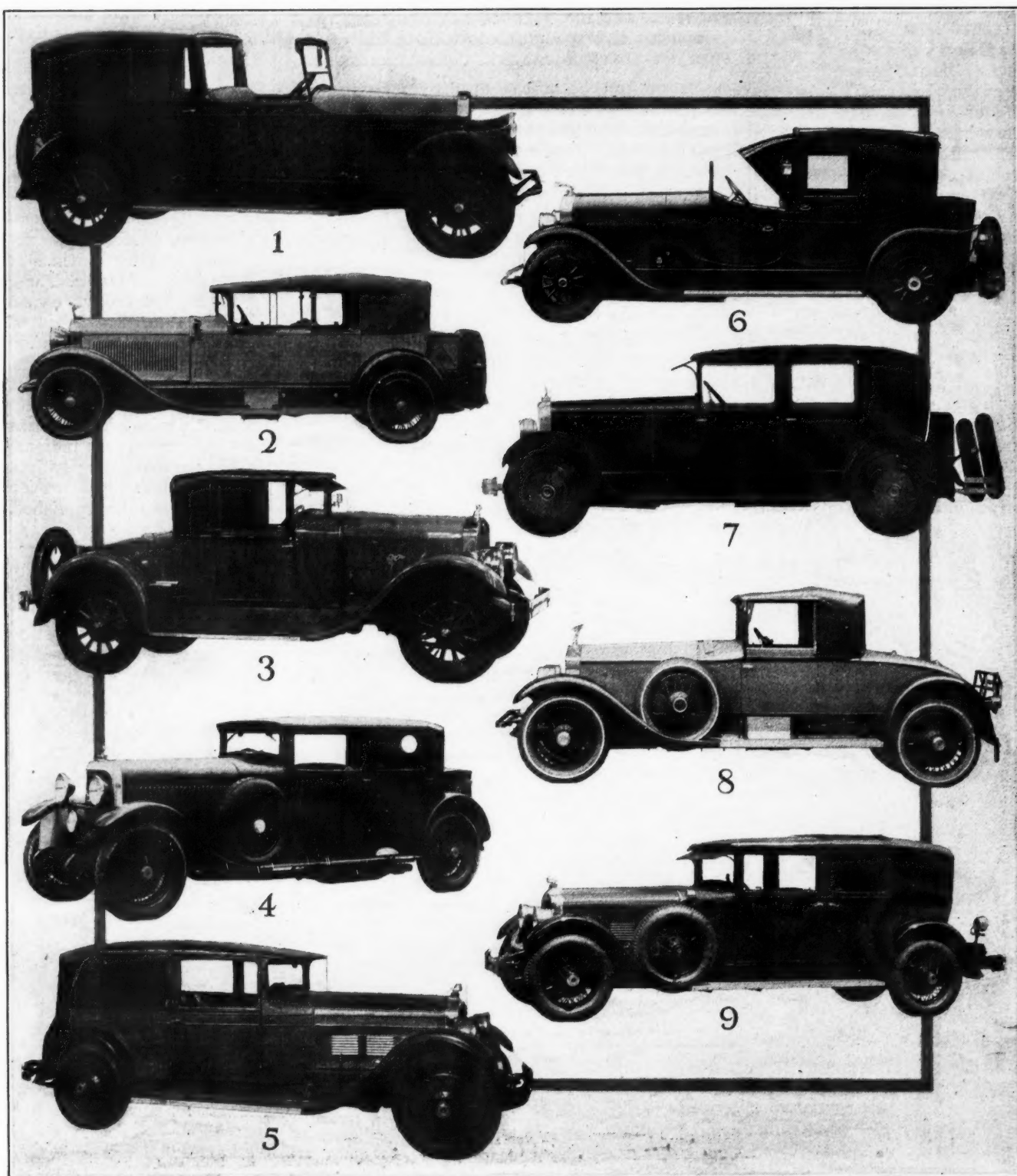
We stand today virtually at mid-channel. The foes of recklessness and indifference have built up resistances strong enough to form a bulwark against the accident and congestion tides. I do not believe that the increase in registration in the future will augment the problem, because the main job of getting engineering attention and method into the picture has been accomplished.

"Little Marmon" Makes Its Debut at Salon

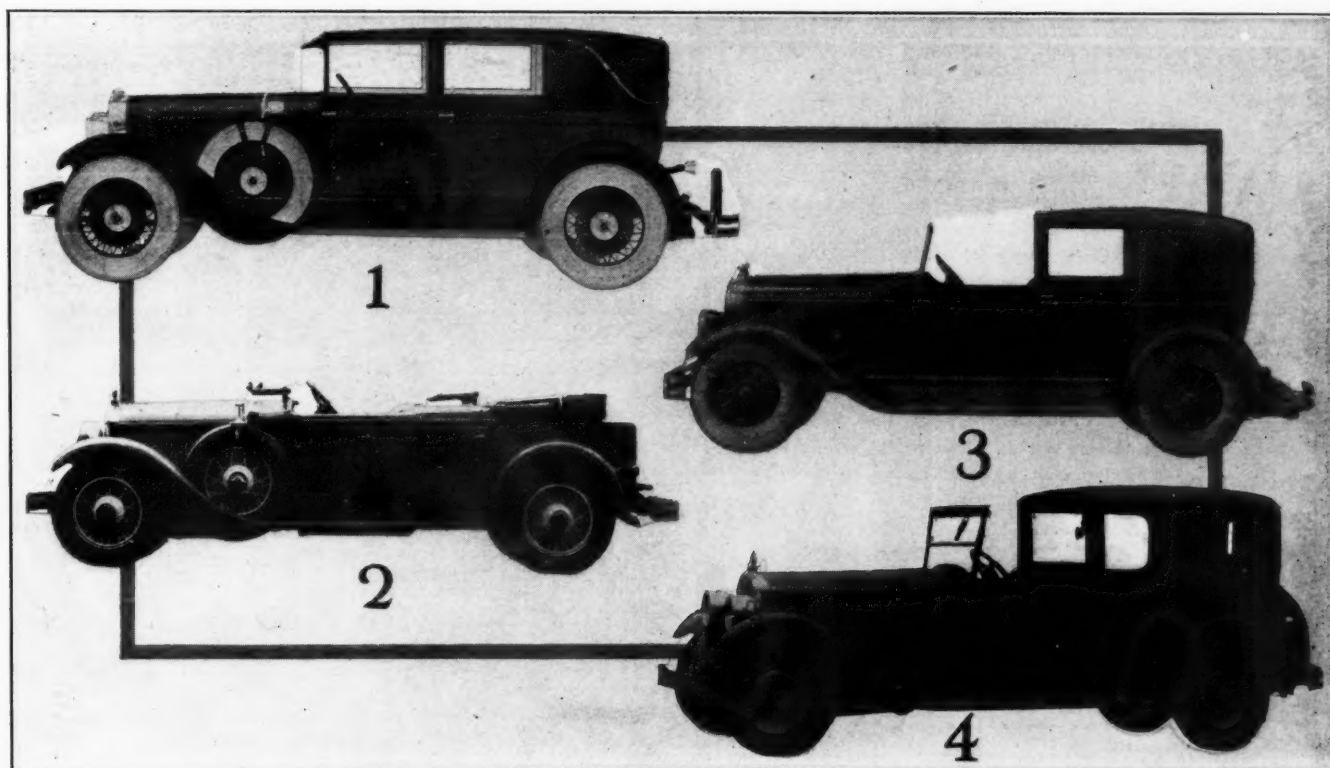


THIS new Marmon model was displayed for the first time at the New York Salon this week. It has an overhead valve, straight-eight engine of 2 $\frac{3}{4}$ -in. bore and 4-in. stroke, developing 64 hp. at 3200 r.p.m. The wheelbase is 116 in., the tire size 29 by 5.25, and four-wheel internal Bendix brakes are regular equipment. The following bodies are included in the line: Two-door sedan at \$1795; four-door sedan, two-passenger speedster and coupe, all at \$1895, and a collapsible coupe roadster at \$1995. Five main bearings of 2 $\frac{3}{4}$ in. diameter support the crankshaft. Pressure lubrication is provided for all main, connecting rod big end, camshaft and valve rocker bearings. The front end drive is by timing chain. Pistons are of aluminum incorporating the Invar strut to maintain constant clearance. The single-plate clutch and three-speed transmission are assembled with the engine in a unit powerplant. Rear axle is of the semi-floating type with hypoid reduction gears while the front axle is a reverse Elliott of I-beam section. The semi-elliptic springs are mounted in rubber insulators. Six-inch channels are used for the frame side rails and adequate bracing is provided by tubular cross-members. Factory accessory equipment includes front and rear bumpers, Lovejoy shock absorbers, electric clock, Fedco numbering system and automatic windshield wiper. Additional details will appear in an early issue

Some of the New Custom-Built Bodies Included in the Exhibits at This Year's Salon



1—Brunn built this cabriolet body for the Pierce-Arrow chassis. 2—This Isotta-Fraschini is fitted with a Fleetwood sport phaeton body. 3—Collapsible top sport coupe designed by de Causse for Franklin. 4—Panhard four-door sedan with body by Driguet. Note typical Continental high waistline and narrow windows. 5—Weymann body is introduced on the Stutz chassis. 6—Judkins body, patterned after a 19th century private coach, mounted on a Lincoln chassis. 7—Marmon sport sedan with body by Willoughby. 8—Stratford coupe by Brewster on Rolls-Royce chassis. 9—The Prince of Wales, five-passenger sedan built for Stutz by LeBaron



1—Holbrook sedan on Cadillac chassis. 2—This Fisher-built sport phaeton on a Cadillac chassis has two cowls and a tonneau windshield. 3—Fleetwood seven-passenger cabriolet with forward facing auxiliary seats on a Chrysler Imperial chassis. 4—Seven-passenger town car with leather roof and quarters built by Derham for Packard chassis

Harmonious Interiors Emphasized in Exhibits at 1926 Salon

*Coach makers strive for drawing-room effect in new creations.
Exterior colors more somber. Grays, greens most popular.*

By K. W. Stillman

POSSIBLY the most important development in American bodywork this year has been the attainment of better harmony in colors and textures in car interiors. This is the impression gained from an inspection of the models on display at the 1926 Automobile Salon now in progress at the Hotel Commodore, New York City.

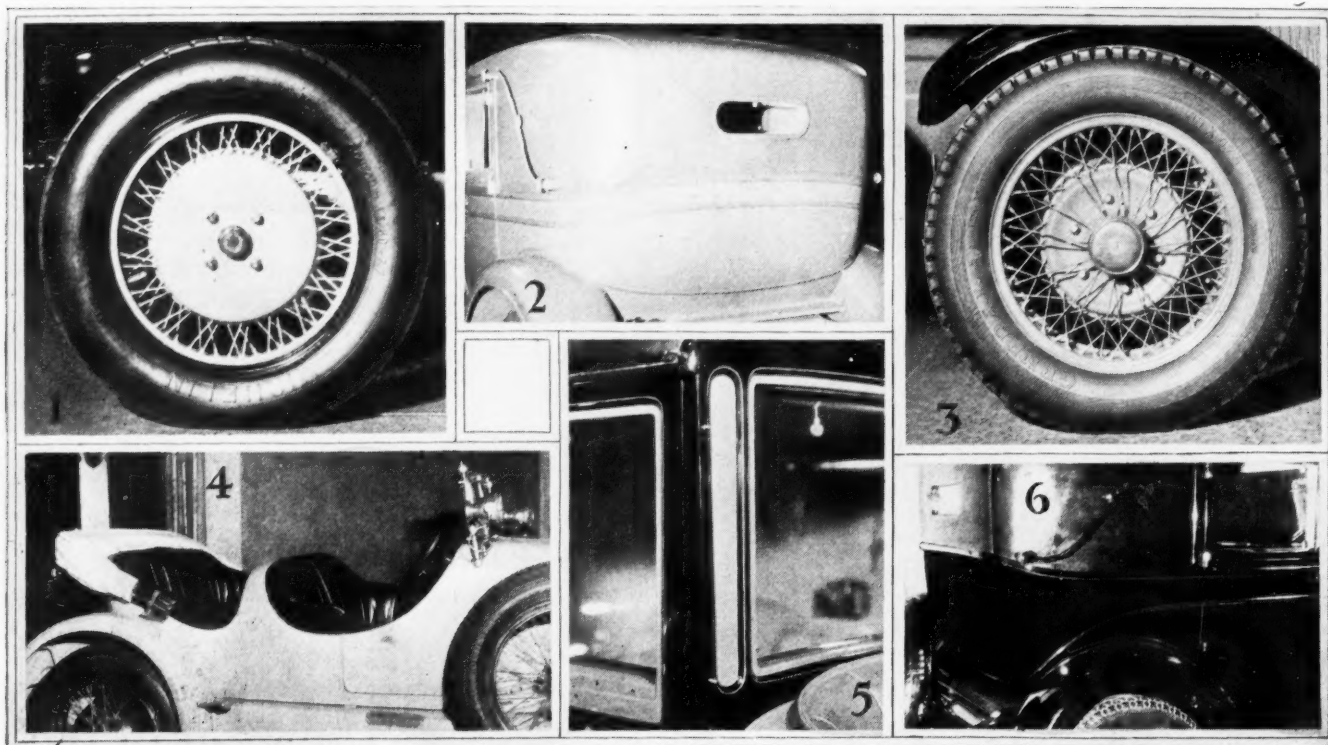
Exterior colors are a bit more somber than they were last year, at least the colors of the principal parts of the cars, but brilliance in trim keeps the general appearance of the exhibits far from the funereal treatment which was in vogue for custom bodies up to a year or two ago.

Car interiors are more beautiful, more comfortable and better appointed than ever before. Upholstery and trim materials have been chosen to agree in color and texture with the prevailing design of the car. Fewer colors and kinds of material are used so that interiors are much closer to the drawing-room standards which appear to be controlling their design.

About 75 cars are being shown, the product of 17

car makers and 15 coach makers. Cars are being exhibited by Cunningham, Isotta-Fraschini, Mercedes, Minerva, Panhard, Renault and Rolls-Royce. Coach makers are displaying on Cadillac, Duesenberg, Franklin, Hispano-Suiza, Chrysler, Lincoln, Marmon, Packard, Pierce-Arrow and Stutz chassis. Coach makers exhibiting are: Brewster, Brunn, de Causse, Derham, Dietrich, Fisher, Fleetwood, Holbrook, Hume, Judkins, LeBaron, Locke, Rollston, Weymann and Willoughby.

From the standpoint of general appearance, color is probably of first importance. Grays and greens are the most popular colors this year. They have been used as the principal colors on over half the cars exhibited. Grays in various shades and tones are employed on about 30 per cent of the exhibits, greens on slightly more than 20 per cent. Brown, blue and red follow in popularity in the order named. The extent of the progress since the time when black was considered as about the only desirable color for a formal car is indicated by the fact that just six of the cars shown have black as their main color.



1—Wire wheels fitted to Renault cars with expanded hub to conceal brake drum. 2—Unique treatment of bead work around the rear of a Minerva. 3—Wheels with expanded hubs are fitted to some Packards. These, like the Renault wheels, are applied like disk wheels. 4—Mercedes ultra-sport roadster. Body color is cream; upholstery bright red leather. 5—Interesting panel used on the front face of a cabriolet enclosure. A Holbrook-Packard exhibit. 6—Detail of bead treatment on a Holbrook-Marmon

Whether it is because of the better results for display purposes which may be obtained from varnish finishes or because this type of finish is still preferred by custom body owners, about 85 per cent of cars are finished in varnish, the remainder, with the exception of two fabric-covered Weymann bodies, being in pyroxylin material.

As usual, cabriolets, or town cars, dominate the show, over half the cars being of this type. Sedans and inside-drive limousines make up well over 30 per cent of the exhibits, while there are five touring cars, four coupes and two roadsters. The open cars are all of the ultra-sport type and are usually equipped with glass side screens so that they can be transformed into weather-tight vehicles easily.

Broadcloth still maintains its popularity as the upholstery material for formal cars, although velours and other fabrics as well as the new soft leathers are used to a considerable extent.

What appears to be the most interesting development since the salon of last year is the treatment of the interiors of closed cars. In effect, they have been considered small rooms and all the colors and materials which are visible in them appear to have been selected from the standpoint of harmony rather than for any other trait. Inlaid marquetry panels on the doors, around the windows and across the back of the front seat agree in tone with the design of hardware used in the interior of the car, and with the decorations and general appearance of upholstery and lining materials. In nearly all the cars the decoration of the interior seems to have controlled the exterior decoration as well. This may have worked the other way around, but from the near perfection which has been obtained in many interiors one is led to believe that they must have been the controlling factors.

No important change in exterior treatment is to be

noticed except the continuance of trends which have been noted before. Fewer cars are using black for any purpose unless it is employed as one of the principal parts of the whole color scheme. Fenders, wheels, tops, running gear and even brake drums are generally finished in colors harmonizing with the rest of the car.

Belts, both single and double, are still popular, and while individual makers vary the treatment by carrying them out in arrow-head effects in front, by breaking them sharply at the windshield, by curving them across the rear, or by other means, they are in the main employed in what might be called the traditional manner.

Unique Renault Wheels

In individual cars there are a number of interesting innovations of utility and beauty, many of them apparently being applicable to production work. Renault cars are fitted with unique wire wheels. Wire wheels, by the way, are by far the most popular at the salon. These Renault wheels have spokes only about three inches long, the hub being expanded into a circular plate which not only aids in concealing the brake equipment but permits the wheels to be applied like disk wheels. Some of the Packard cars are equipped with wheels similar in design to the French product.

A considerable number of closed cars are left unfinished overhead and the visible roof bows either left in natural wood finish or finished to harmonize with the interior.

Most of the convertible jobs shown are very interesting and give evidence of much ingenuity on the part of the designers in obtaining both open and closed car advantages without overloading the body with gadgets. All convertibles employ glass side screens but while most of them lower into the body

frame one or two cars provide special compartments for storing the screens when they are not in use. An Isotta-Fraschini touring car is equipped with a lowering partition between the front and rear seats



1—This highly decorative door panel on a Brunn-Lincoln is typical of 1926 practice. 2—Beading is used in an original manner around the windows of this Fleetwood-Cadillac sedan. 3—Convertible Rolls-Royce. Note the side screens lowered into the doors and covered by a hinged angle which frames the screens when they are raised. 4—This elaborate interior is from a Judkins cabriolet, typifying the coaching period in the Lincoln display. 5—In this Lincoln sport phaeton the rear seats are provided with windshields and side screens, the latter operating with the doors. 6—Airplane type fenders, front and rear, are found on an Isotta-Fraschini sport roadster. 7—An interesting treatment of reveals and panels in the window of a Judkins-Pierce-Arrow cabriolet. 8—Arrangement of side screens on a Renault convertible phaeton. 9—Rear seat details of a Fisher-Cadillac sport phaeton. Note the small individual hood, rear cowl and windshield. The belt panel is polished metal. 10—This Locke-Isotta-Fraschini interior shows two typical 1926 customs: skeleton roof and adjustable arm rest dividing the rear seat. Note the door panel of leather trimmed with natural wood. 11—This Fleetwood-Isotta-Fraschini sport phaeton has an adjustable glass partition between the front and rear seats

identical with those used in inside-drive limousines. On some sport touring cars side wings for the rear seats are arranged to operate with the doors.

Metal sun visors are much in evidence, while divided windshields, often with only the part in front of the driver adjustable, are employed by many different makers. The usual location for the two spare wheels, which is standard equipment when wire wheels are fitted, is in the front fenders. The wheels are usually supported by nickel-plated arms which branch out from a molding of the same material employed to separate the cowl from the hood.

On at least two closed cars the tops are of light colored fabric similar to that often employed on open cars. Polished metal is used frequently on Isotta-Fraschini cars as well as on one or two others. On the Isottas the metal is machine burnished to give an effect similar to snake skin and is rather striking.

Two Weymann bodies are being shown on a Stutz and on a Hispano-Suiza.

The Little Marmon, the new eight-cylinder chassis, is being shown for the first time. Panhard is exhibiting a car equipped with a Knight straight-eight engine, an interesting feature of which is that the starting motor is fitted directly to the end of the crankshaft.

Arm Rests Are Popular

Nearly all of the rear seats of closed bodies and even some front seats are fitted with arm rests which can be folded back to disappear into the seat backs when more than two persons are to occupy the seat. Vanity sets, smoking sets, clocks, lights, and all sorts of similar items designed for the comfort and convenience of occupants of the cars have been provided in profusion. Possibly the highest conception of this trend at the salon is to be found in a Minerva gentle-

man's sport sedan which has cabinets fitted to the back of the front seat containing cold boxes, containers, glassware and all the other essentials for storing and serving a cold lunch with suitable liquid refreshments.

Two very sporty roadsters are on display. One, a Mercedes, has bright red leather upholstery and very low doors. An Isotta-Fraschini, said to have been designed by the late Valentino, has fenders patterned after airplane wings and a metal hood burnished in resemblance of snake skin.

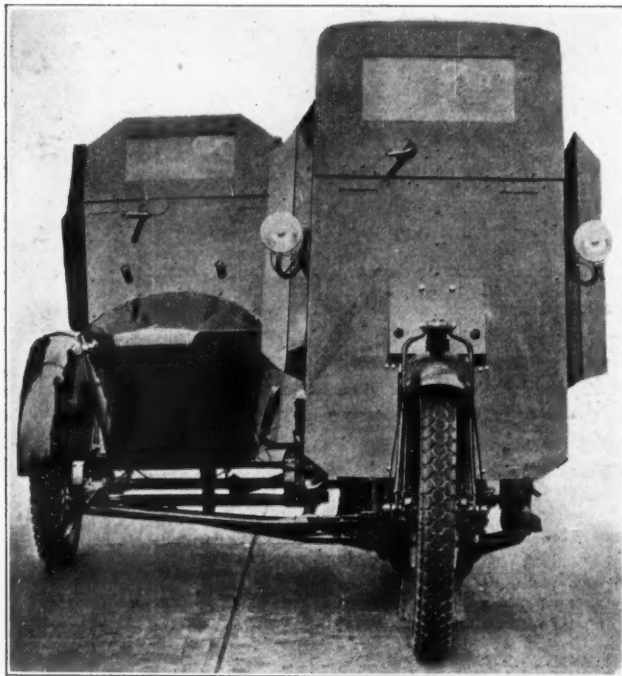
A sport touring car built by Fisher for Cadillac is equipped with tonneau cowl and rear side screens and has a small canopy top which can be raised over the rear seat only. A bright metal panel is employed as a belt on this job and extends from the windshield to the rear of the rear doors.

Interior lighting fitments have been improved—one particular design employing small shaded bulbs extending from the upper rear corners. A number of cars are fitted with lamps placed to illuminate the steps and so connected that they light automatically when the doors are opened.

Trunks and trunk racks are still popular, particularly on open cars, and natural wood strips are used in many cases as rack material. A Cunningham phaeton was unique in having no exterior door handles. Auxiliary headlights for lighting the roadside, for parking purposes and for operation as dimmers are quite common. Some of the French cars are equipped with headlights made by Stephen Grebel, Paris, which give a very powerful beam of great penetration and with a very sharp cut-off—practically no light falling outside the direct path of the parallel rays of the beam.

At least one car is equipped with Ryan-Lite, the new development of the General Electric lighting expert.

Bandit-Chasing Motorcycle



TWELVE armored motorcycles of the type shown above were delivered recently to the police department of New York City by the Indian Motorcycle Co. The upper portions of the shields are hinged so as to

drop down for ordinary riding or patrolling, but may be raised and locked in position with a single sweep of the arm. The armor is battleship plate and the vision glasses on each shield are bullet-proof. Small port holes are located just below the vision glasses and are equipped with shutters which may be closed when rifle barrels or revolvers are withdrawn. An electrically operated siren and high-powered spotlights are fitted.

A NEW standard for making determinations of the anti-knocking qualities of different motor fuels has been proposed by Dr. Graham Edgar, director of research of the Ethyl Gasoline Corp.

A new octane has been discovered which is said to have anti-knocking qualities greater than any fuel now known. It may be explained that octane is one of the components of ordinary gasoline, but occurs in several isomeric forms; that is, while the octane molecule is always composed of the same number of carbon and hydrogen atoms, these atoms may be differently grouped. Because of its high cost of preparation it has no commercial value, but it is recommended as a standard for making comparisons of anti-knocking qualities.

By mixing this octane with normal heptane, another constituent of ordinary gasoline, and which knocks violently, Dr. Edgar prepares fuel mixtures which duplicate the knocking characteristics of any motor fuel. It is therefore possible to express the knocking characteristics of any fuel in terms of the proportions of these two constituents in an equivalent mixture.

Just Among Ourselves

An Exhibition of New Inventions

AS some psalm or other has it, "The way of the inventor is hard." The percentage of useful inventions as compared with the total is so small as to make the going tough for everybody with a new mechanical idea. The number of impractical devices the average engineer is asked to spend time looking into naturally makes him a bit hard-boiled in approaching anything labeled "invention." Still, it is obvious that continued experimentation and invention are absolutely necessary if progress is to continue and that the business value of given inventions cannot be determined unless time is taken to examine new ideas. We were interested to learn from a notice received recently from the British Institution of Automotive Engineers that arrangements are being made for the Institution to hold another of its "Inventors' Evenings" which are devoted to the explanation and demonstration of devices in connection with motors and accessories which are not on the market. Properly worked out the idea might be feasible in connection with some S.A.E. meeting or other on this side. Obviously, the session would have to be very carefully handled in preparation if it were to be made of real value.

* * *

Shoemakers Succeed by Abandoning Lasts

SPECIALIZATION of activity on the part of thousands of men has resulted in enormous economies of production and marked improvement in living conditions for everyone. But failure of some shoemakers to stick to their lasts has had some extremely helpful effects along the same line. The vision and mental speculations of many

men who later became leaders of the automotive industry, for example, have been just as much responsible for the growth of the industry as the specialized activities of the rank and file. Had each of the leaders stuck to the detailed task or vocation which he first embarked upon, little of our present progress would have been achieved.

* * *

Automobiles Once Side Issue With Ford

HENRY FORD himself offers a good example of this very thing as is evidenced by the following quotation said to have been taken from a Detroit newspaper of October, 1901: "Henry Ford," the item runs, "broke into the front ranks of American chauffeurs by his wonderful performance in his machine yesterday, but it is likely that he will never again be seen in a race. The dizzy pace with the great danger of colliding with other cars is not to his liking. Ford began to dabble in autos five years ago. Yesterday was the first time he ever drove in a race. That he was an amateur was plainly shown by the way he took the curves. The automobile, however, is a side issue with Mr. Ford. He is spending busy hours at his shop perfecting a new automatic timer that will automatically time a race to the smallest part of a second." Sidelines sometimes are worth following.

* * *

A Telephone Call Sells a Car

WE heard the other day of a local automobile show—a county affair—that was advertised to the people of the community in a rather novel and effective way. A friend who lives in the county where the

show was staged was sitting in his home one evening when the telephone rang. A feminine voice at the other end inquired to verify the number and then said: This is the office of the —County Automobile Show Committee and we are calling to extend you a special invitation to attend the show which is being held Thursday, Friday and Saturday of this week—," giving the location. She added that all of the leading makes of cars would be included in the exhibit, and that it would be worth seeing. Now the sequel to this is that our friend, who prior to the telephone call didn't know such a show was going to be held, got into his car one evening and went down, taking with him for company several of his neighbors. And before they left the show one of the neighbors had signed an order for immediate delivery of a new car. The man who bought the car didn't know the show was being held until our friend told him, therefore the sale came as a direct result of that one telephone call. That's pretty good advertising.

* * *

Forces Lining Up for Tax Battle

THE White House spokesman, it is reported, told the newspaper boys the other day that he is opposed to repeal of the automobile nuisance taxes—only he probably didn't refer to them as "nuisance" taxes. Unless our reports are all wrong, however, there are lots of good men and true at the other end of Pennsylvania Avenue who are ready to carry forward the battle for elimination of these war-time taxes. Senator-elect Walsh of Massachusetts has flatly declared himself on the automotive side of the fight and others of influence in both houses and in both parties can be counted upon for support.—N. G. S.

Large Diameter Cooling Fans Most Economical for Buses

Give a greater flow of air per horsepower consumed and help to solve problem of fan drive. Power required by high-speed fan is sufficient to reduce car speed, especially on hills.

By R. S. Wentworth

A SURVEY of the larger bus operations throughout the country during hot summer weather will probably indicate that our present cooling means are not fully satisfactory. In many instances steam will be found issuing from radiator caps, and the rusty appearance of radiators and hoods of some buses will show that they have been overheating. Upon investigation it may be found that the operating company has to pay special attention at frequent intervals to the belt adjustment and to make replacement, and also has found it necessary to arrange for the refilling of the radiators at more or less frequent intervals during the day.

This special care is but one more leak in profitable operation and would seem to justify further work toward improving the whole cooling system.

The radiator, fan, water pump and jacket form a more or less complicated and delicate system and add materially to the weight, initial cost and operating expense. At best the cooling system is only an auxiliary to permit continued operation, and its functions should be secured without necessity for undue attention and without wasting excessive engine power.

Insufficient Transmission Capacity

This article is not concerned with installations where the under-cooling is due to insufficient fan speed or radiation as laid out by the manufacturer. Indeed, it is believed that where the fan is actually turning over at the intended speed there is usually but little trouble. The particular point then is that, apparently, effective cooling is often too hard to maintain—and the usual cause is insufficient transmission capacity for the needs of the fan.

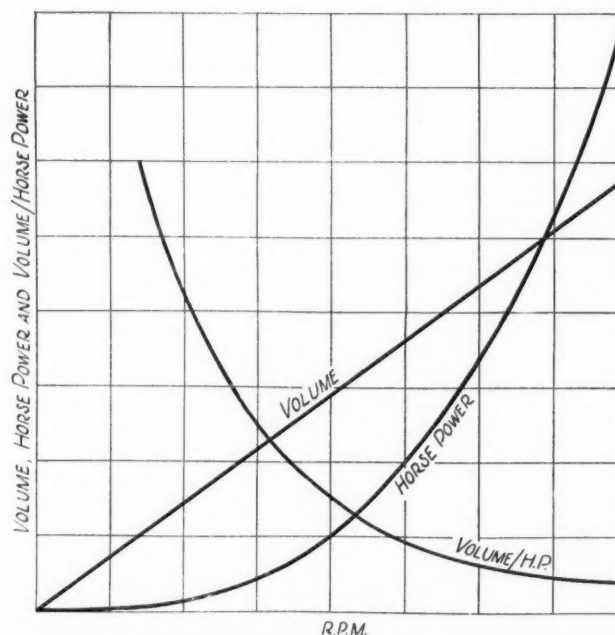
Perhaps the obvious remedy would be to increase the capacity of the belt or go to a mechanical drive, but this cannot be done without added cost and weight, and without continuing to waste a very considerable portion of the engine's developed power. It, therefore, appears preferable to increase the efficiency of the system and thereby secure the same cooling with less horsepower loss and with added reliability, and sometimes reduced weight, while still retaining the flexibility, simplicity and low cost of the belt drive.

An improvement in the efficiency of the whole cooling system presupposes an improvement, where possible, in the efficiency of each individual unit and the use of units of the most suitable sizes. Assuming a satisfactory flow of water to lead the heat to the cooling system with a reasonably low temperature drop, the only other concern is the means of transferring

that amount of heat to the air and thus ejecting it.

In the design of the radiator fan, sometimes the air movement due to the car speed is allowed for and sometimes it is not. The designer may properly count on the help of car speed for cooling the average automobile; for buses, however, it seems desirable that the fan should be able to handle the major part of the work if, indeed, not all of it, the reason being that where the ratio of weight to horsepower is high we must expect long continued stretches of work in low gear with the engine at high speed and developing its maximum power.

Assuming that the fan will be required to furnish



Graph indicating variation of fan delivery and horsepower consumed with speed of revolution

most of the cooling air, then the fan and radiator must be dimensioned accordingly, or else a shroud must be used. Furthermore, to be effective the shroud must have considerable depth, which frequently is precluded by hood limitations, expense and weight. Without a shroud the core size should be no more than large enough to accommodate the fan in its various positions of adjustment, using a vertical adjustment if a high radiator is desired and a diagonal adjustment

if a square core is used. From this it will be seen that fan size controls the frontal area. This leaves only the core thickness as a variable to secure the desired radiating surface, and we are faced with a loss of effectiveness per pound as the core thickness is increased. It may be mentioned here that the design of the core and its resultant air resistance determines the practical limits of depth.

If the fan size determines the radiator core area, and decreasing effectiveness precludes going to excessive core depth, the only remaining means of procuring additional cooling is by an increase in fan speed. Here, however, we meet the most serious inefficiency of all, since excessive speeds rob the engine of power, overstress the belt and make for a short-lived installation, or else an excessively heavy and expensive one.

It may not be generally known that 15 hp. easily may be required by a 22 in. disk fan at speeds approximating 3000 r.p.m., and that such speeds are often obtained in service unless belt slippage occurs. Neither is a satisfactory condition.

In this connection it may be stated that in testing a vehicle on hills a very marked difference in car speed is noticed between running with or without a fan of the usual high speed type, and that the same cooling can be secured by the use of fans of larger diameter at medium speeds, a clear proof that high speed fans do consume great power. Such tests also show the belt drive's limitations and explain why troubles are experienced in service even when a 2 in. belt is used.

From the accompanying sketch it can be seen that

for disk fans of the automotive type the delivery is nearly proportional to the r.p.m., while the horsepower required increases much faster with the result that the vol./hp. curve indicates the necessity for low speeds in order to secure the required air without too great consumption of power. We should therefore use a fan of such size as will give the desired air delivery at a reasonably low horsepower, when it will be very easy to drive it with a simple belt which will cause a minimum of trouble and will be long-lived, light, simple and cheap to build and service.

As to the restriction of the fan speed, an approximate method is to assume that fan deliveries at any given r. p. m. vary as the cubes of their diameters, since the delivery is measurable by the projected area of the rotating blades times the average velocity, and these are respectively proportional to the square and the first power of the diameter. For 100 hp. buses a core of 700 sq. in. is not unusual with small size fans, and some such area would permit us to swing a 26 in. fan, thereby securing the desirable high ratio of fan-swept area to radiator frontal area. The speed will then be inversely proportioned to the ratio of the cubes of the diameter, or only 60 to 70 per cent as fast.

If the efficiency curve of the 26 in. fan is not greatly lower than that of the 22 in. fan, such a reduction in maximum speed will likely cut the corresponding horsepower in half without changing the cooling ability, and the net result will be long belt life and continued satisfactory cooling, as well as gains from the releasing of additional engine power.

Ward LaFrance Builds High-Speed 4-Ton Truck

WARD LaFRANCE TRUCK CORP., Elmira, N. Y., has introduced Model 4B6, a 3½ to 4-ton truck designed primarily for de luxe moving vans and high-speed, long-distance transportation. It is powered with a Waukesha, Type 6QL, six-cylinder engine of 4 in. bore and 5¾ in. stroke. Regular full pressure lubrication is supplied and in addition there is a Duplex system which provides direct lubrication to the pistons from an auxiliary tank.

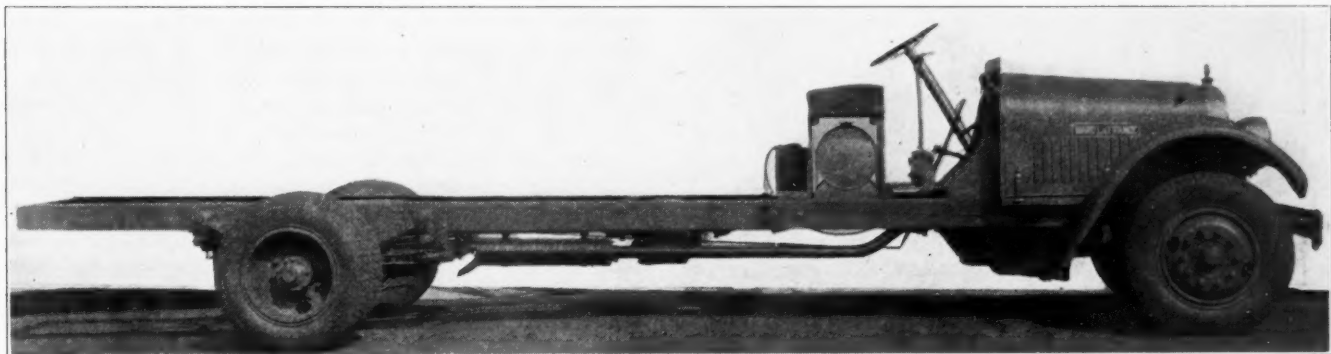
The chassis has a low center of gravity but is not underslung. Pneumatic tires, 34 x 7 in. front and dual rear, are standard, but other sizes and combinations are optional.

An AC air cleaner is direct-connected to the Waukesha patented Dynamic Hot Air Stove through which hot or cold air, depending upon air velocity, is passed

to the carburetor. A heavy-duty Brown-Lipe clutch with 14 composition driving disks is employed. The four-speed transmission is mounted amidships and provides direct drive on third speed and over-gear on fourth.

Timken worm-drive, full floating rear axle is used and it is fitted with a wormshaft brake operated by the hand lever. Internal brakes are fitted on all four wheels and pedal operation is aided by a B-K booster brake as optional equipment. Chassis lubrication is by Myers magazine system.

Robert Bosch magneto with impulse coupling, and Auto-Lite starting and lighting units are employed. A Fedder radiator with nickel-plated shell, crowned fenders, Guide Tilt-Ray lamps and nicked front bumper are all standard equipment.



General chassis view of new Ward LaFrance model 4B6 4-ton truck. The chassis has a low center of gravity but is not underslung

Sauzedde Airplane Brake is Built Integral With Wheel

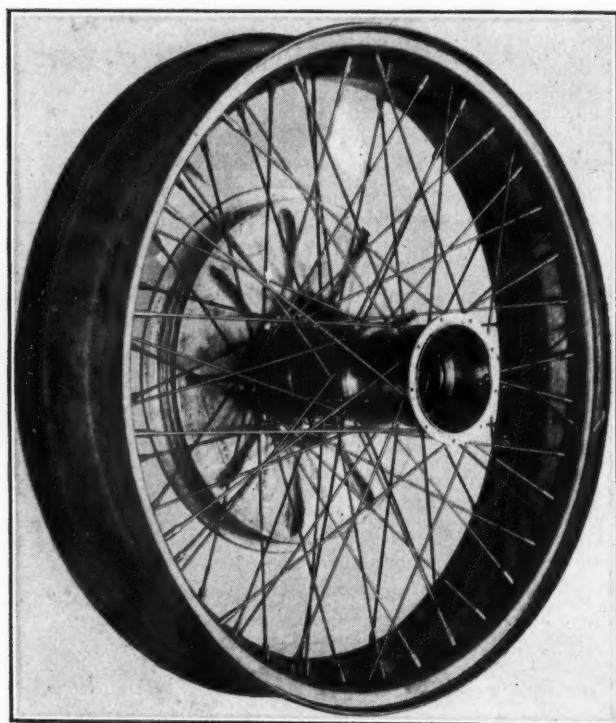
Triple-laced wire spoke design used for strength. Aluminum drum attaches to flange at rear of hub. Separate assembly carries two self-centering, self-energizing brake shoes.

By Leslie S. Gillette

IN order to decrease the danger of landing in small fields, to enable taking off with a shorter run and to make airplanes capable of being operated by the pilot on the ground without assistance, wheel brakes have been fitted on a considerable number of commercial planes during the past year. Of the types developed, that manufactured by the Sauzedde Corp., of Detroit, has been the most extensively used.

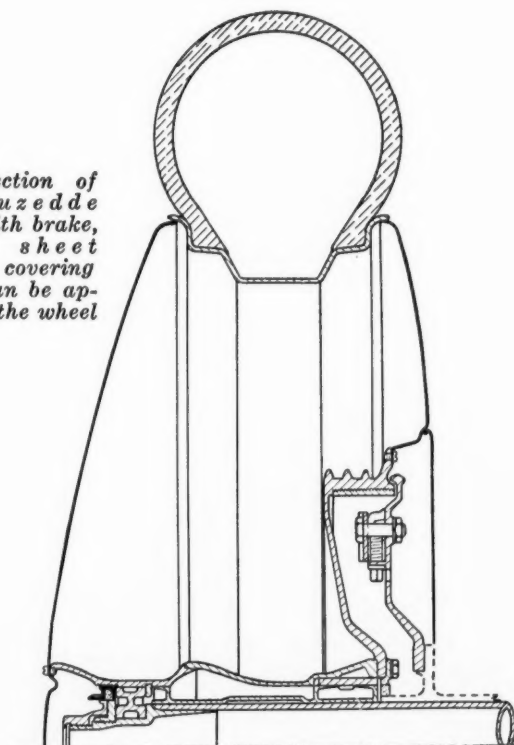
Designed originally for automotive application, the Sauzedde wheel and brake unit was brought out for airplane application in March of this year. Since that time the Fokker, Huff-Daland, Boeing, Verville and Laird planes have been equipped with these units, while the Army Air Corps is conducting tests with them on all types of service planes at McCook Field.

Three sizes of brake units have been developed for use with wheels now generally used, the Sauzedde wheels themselves being interchangeable with standard



The unusual three-spoke arrangement which is the salient feature of the Sauzedde wheel can be seen in this view, as the aluminum wheel fairings have been removed. In addition to greater strength, this spoke design permits placing the brake mechanism inside the wheel

Half section of the Sauzedde wheel with brake, showing sheet metal covering which can be applied to the wheel



wheels. All wheel sizes are equipped with drop center rims, with the exception of one which is used on large army bombers.

On account of the high torque load produced when the brakes are applied, and also because of the necessity of enclosing the brake mechanism inside the wheels to reduce the air resistance, the wheels are triple-laced or provided with three rows of spokes. This arrangement also gives greater resistance to lateral loads than is possessed by the ordinary type of wire wheel.

The same spoke arrangement is used on all wheels. On the smaller 28 by 14 in. wheel, the rear spokes, 32 in number, extend from the inner or rear end of the hub to the outer circumference of the rim and carry as much load as the two other rows together, these having 16 spokes each. The intermediate row of spokes extends from a circle on the hub two-thirds the way out from the inner flange, to the inner circumference of the rim, while the third row extends from the outer end of the hub to the outer circumference of the rim.

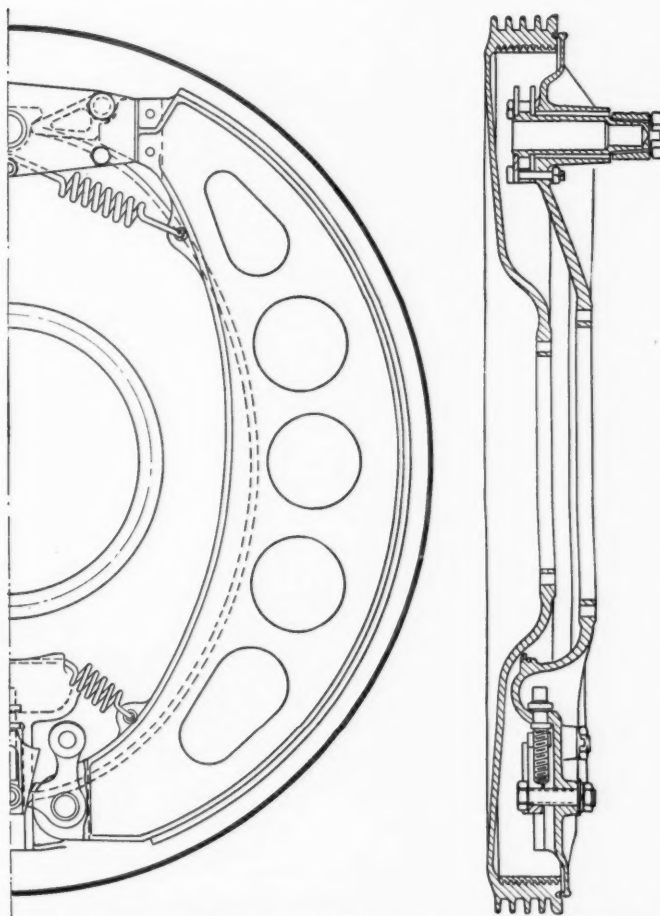
The design of the wheel is such that all spokes are of the same length. Moreover, the angles between the various rows of spokes and the hub axis are the same,

which results in substantially uniform loads on all spokes.

The drop-center Firestone rim is made in one piece, and the hub is machined up from an alloy forging.

Brake units for the various wheel sizes are of the same general design. An aluminum drum is secured to a flange at the rear of the hub by 12 cap screws. A separate assembly carrying the two self-centering and self-energizing brake shoes is attached to a similar flange, the latter being secured to the undercarriage axleshaft. A cast-iron liner, $1\frac{1}{4}$ in. wide by $\frac{1}{8}$ in. thick, is cast in the aluminum drum. Cylindrical grooves on the outside of the liner serve to provide a better bond between the two metals. Fins are provided on the outside of the aluminum drum for heat dissipation, while the side of the drum is ribbed for strength. In addition, a recess is formed in the drum for mounting an aluminum cover which completely incloses the inside of the wheel.

Two aluminum shoes, with $\frac{3}{16}$ in. friction material riveted to their faces, are anchored at the top of the brake cover plate by two steel link plates. The holes in these link plates where they are secured to the brake cover have $\frac{1}{32}$ in. clearance to allow for centering of the shoes in the drum. Short steel ends are riveted to the lower ends of the two shoes so that the shoes can be



Side view and cross section of Sauzedde brake and drum

expanded by the double-faced cam through reduction levers. The latter, together with the steel ends of the shoes, are retained inside a bronze cage, and the cam is operated by an adjustable lever on the outside of the aluminum brake cover. The cam faces are of involute shape. Adjustment of the shoes is by a wedge-shaped member which is in contact with two cam projections formed on the two links securing the anchored ends of the brake shoes. This wedge, which has a square shank working in a slot on the brake cover, is adjustable from the outside of the cover. Screwing down on the adjusting screw forces the wedge between the link plates and spreads the shoes.

While the Sauzedde wheels are available with plain bushings in the wheels hubs, the manufacturer recommends the use of anti-friction bearings. When a Hyatt

bearing is used at the inner end the rollers bear directly upon the axle shaft instead of operating on the usual inside race.

Operation of the brakes from the pilot's cockpit is by two pedals which are connected to the actuating arm on the outside of the brake covers by steel cables leading through the steel tubing forming the undercarriage. Aluminum fairings completely inclose the wheels.

Six-Wheel Vehicles Are Adopted for Creeper Track Work

FOR several years the Mechanical Transport Department of the British War Office has been experimenting with six-wheel motor vehicles and has finally decided to adopt them in place of creeper track vehicles. The advantages of six-wheel vehicles, equipped with pneumatic tires, when operated on good roads are well-known and the War Department has come to the conclusion that these vehicles can also be employed to just as good advantage as creeper track vehicles on soft, uneven ground. A short while ago a number of six-wheelers of various makes were put through very severe tests in a country of rough topography and quite devoid of roads of any nature.

For particularly rough going, where the great natural tractive effort of four driven wheels—each one mounting dual pneumatics—fails, a removable creeper track has been designed. It consists of a track of flexible steel long enough to encircle the two driving wheels on each side. The links of the track lie in the groove formed between the dual tires. The tracks are placed in position, drawn together by tongs and fastened by pins. To put them on or to remove them takes but little more than a minute and with them in

place it is said that all the tractive advantages of an ordinary creeper track vehicle are obtained.

In developing this type of vehicle particularly for military purposes, but also with a view to fitting it for commercial use so that a reserve of vehicles might be developed against war demands, the Royal Army Service Corps has decided upon certain elements of design.

The suspension of the driving axles must be such that under all conditions of tractive effort the ground pressures of all four driving wheels remain equal.

The suspensions must permit free articulation of the driving axles within as wide limits as possible in such a manner that the springs are not twisted nor the equal distribution of weight disturbed.

A light tractive effort being required, it should be obtained by gearing down a moderate sized engine rather than by employing a very large one.

A normal four-speed-and-reverse transmission is employed with a two-speed reducing gear which can be brought into play for very heavy duty so that, in reality, a choice of eight speeds forward and two reverse is provided.

Rapid Production Milling Methods Applied to Tractor Parts

Installation of modern machines and special fixtures enables manufacturer to effect savings in labor, floor space and time. Standard cutters and arbors used. Operations are described.

By Frederick B. Heitkamp

MANUFACTURING efficiency in automobile plants is constantly increasing and other industries are beginning to follow the lead of motor manufacturers in respect to production methods.

The present article deals with equipment recently installed by a large tractor manufacturer who realized that labor-saving machinery was responsible to a large extent for the rapid progress in passenger car production and wished to make use of the same tools and productive methods, as far as possible.

In the examples dealt with, the production requirements in each case largely determined the method used. What was desired was to get the cheapest equipment and the fastest methods. Having decided to improve the equipment which was already being used, the tractor company engineers sent out their blue prints to various manufacturers for analysis, and for suggested methods of milling and estimates of production. The engineers made their own analysis, but they, at the same time, appreciated that the machine tool manufacturer, who has contact with many branches of industry, is able to apply to a particular job the best method which may be culled from a great variety of operations.

Complete information was sent with blue prints, so that the machine tool builder could furnish a complete and intelligent survey and analysis. Too often incomplete data are supplied, and incomplete and inaccurate recommendations result. In this particular instance the manufacturer who finally secured the order worked out the entire job in detail in his own plant, and then sent representatives to the tractor plant to sit in with the tractor engineers and complete the engineering work on the ground.

Equipment Allows for Expansion

Of the several ways in which these jobs could be handled, the one most efficient for the production required was selected. However, the equipment which was supplied and which is illustrated in this article, allows for expansion as requirements increase. For instance, instead of having one fixture mounted on the machine table as shown the index base method of milling could be used, with a fixture mounted on each end of the base, so that the operator could load one piece while the other was being milled.

Further economy results from the fact that each simple fixture is universal, in that it can hold several sizes of the same piece, and in some cases can hold both right-hand and left-hand parts. This holds true for all pieces having the same cutter gang and the same or similar milling operation.

All fixtures are simple in action; that is, the pieces are located and clamped quickly and easily. For frail castings an adequate support is provided to permit of the highest possible feeds. Simple cutters are used throughout. All are standard and are conveniently combined in simple gangs to obtain the desired result. Instead of ordering special cutter gangs, which would be set up for the particular operation in hand, standard arbors and standard cutters are used, and each gang is set up as it is required for production. Later on, if production requirements increase, cutter gangs can be purchased and kept intact or left standing for that particular operation. Under existing conditions it was cheaper to order regular cutters and standard arbors.

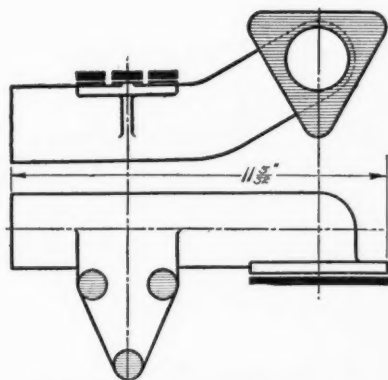
Fixtures Alone are Special

The fixtures alone are special, and these are simple, universal and economical. Automatic features are built into the machines as part of the standard design. These speed the output and relieve the operator of the duty of watching the table movements. All he does is unload the work and throw in the starting lever to engage the feed at the proper time.

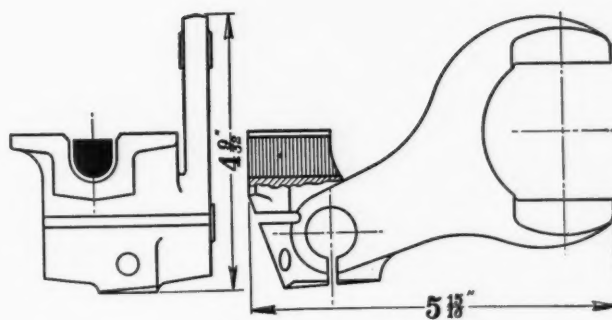
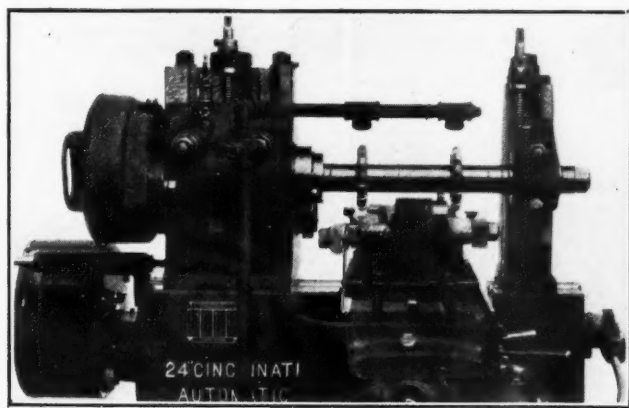
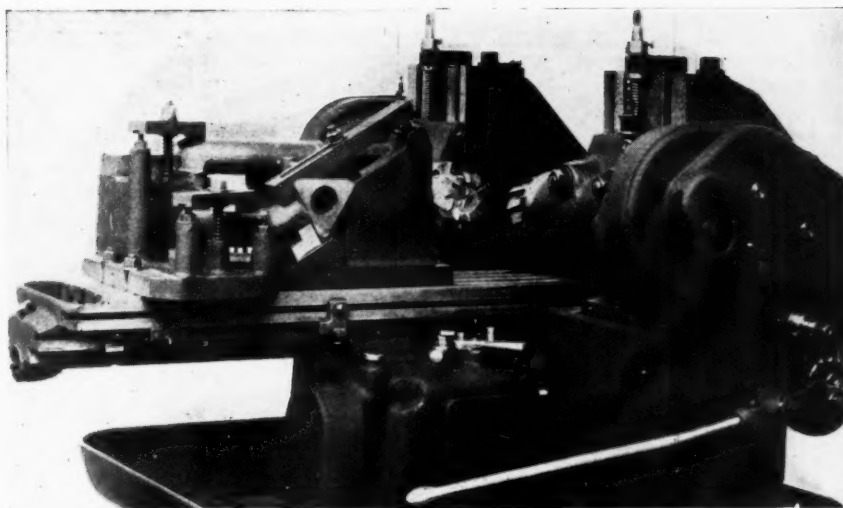
Many savings can be effected through the introduction of modern machine tools, but the considerations which predominated in the present case were savings with respect to labor, floor space and time of production; an excellent finish obtained with very little scrap, and close limits which could be maintained throughout.

The illustrations which follow cover a wide variety of parts. Fig. 1 shows a 24-in. duplex automatic, milling the flange and the three bosses on an air cleaner bracket. The material is gray iron, and two 4½-in. diameter shell end mills remove ⅛-in. stock. These mills revolve at 66 r.p.m. and the feed is at the rate of 8.3 in. per minute. At this rate the production is about 41 per hour. A progressive type fixture is mounted on the machine table and holds two pieces, each piece in a different position.

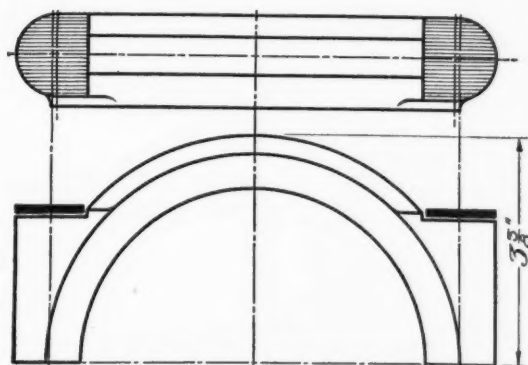
In the first position the piece is held to mill the triangular-shaped pad as shown in Fig. 1A. This piece sets in a V block and is located by two fixed stops. A clamp over the top of the piece holds it against the V block, while another clamp holds it against the locating stops. The second piece sets on its finished flange face and is located by an adjustable support and fixed side stops. A clamp over the top holds the piece down against the finished flange and another clamp holds it against the locating stops. The work feeds between two shell end mills, finishing one pad



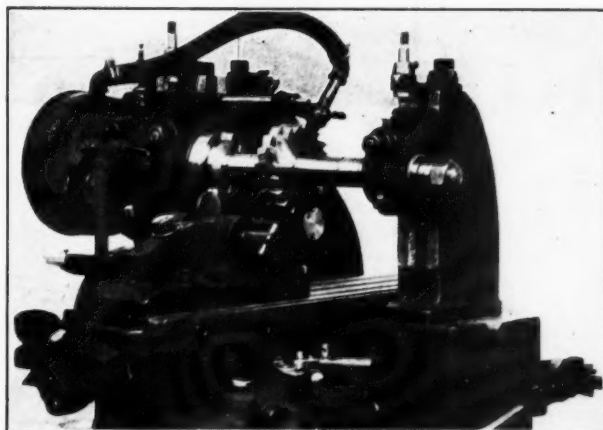
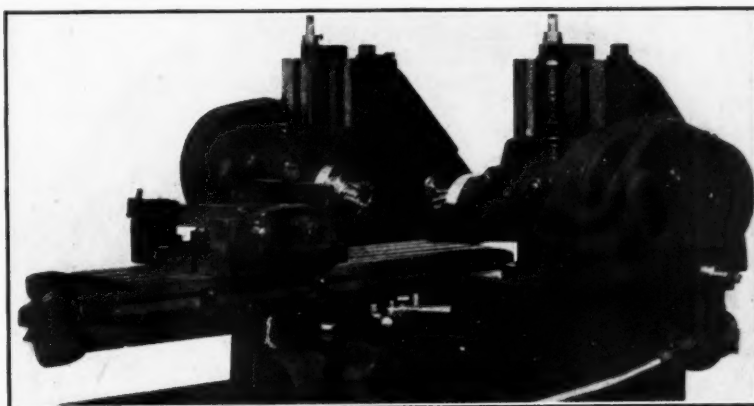
Right—Fig. 1. Milling an air-cleaner bracket. The bracket, Fig. 1A, is shown above



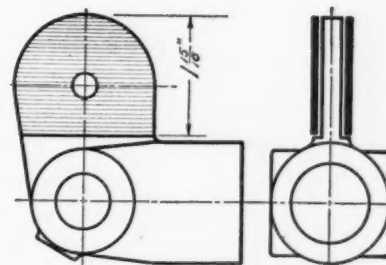
Left—Fig. 2. Milling slots in a gear shifter fork. Above—Fig. 2A. Showing surfaces finished



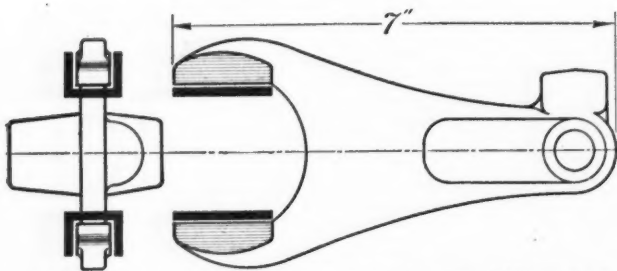
Right—Fig. 3. Milling bolt bosses of differential bearing caps. Surfaces finished are seen above in Fig. 3A



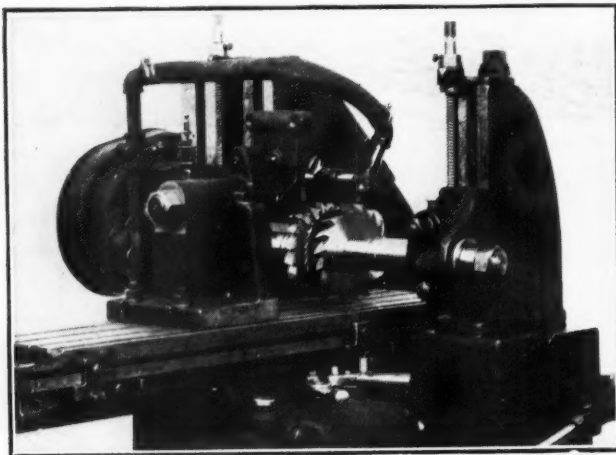
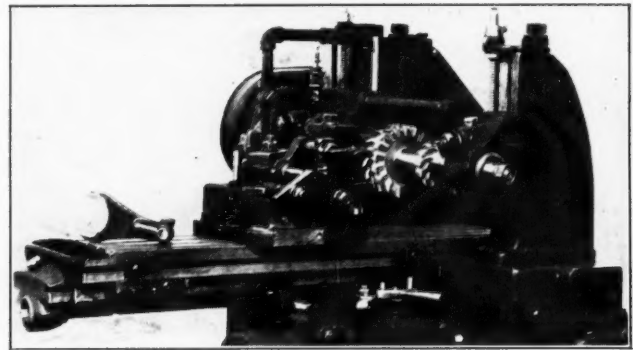
Left—Fig. 4. Milling the arm of a steering shaft bearing



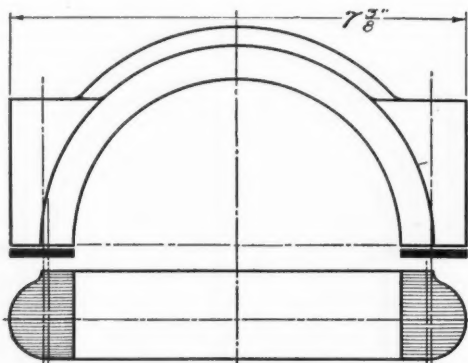
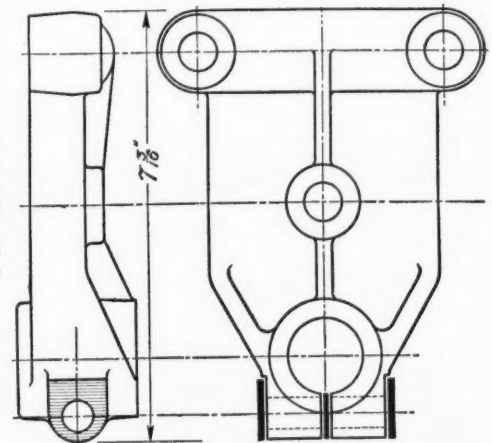
Above—Fig. 4A. Part shown on machine in Fig. 4



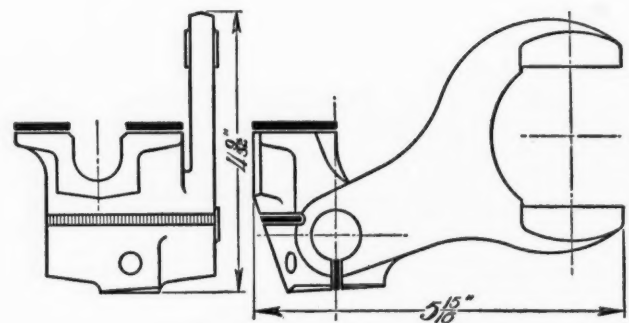
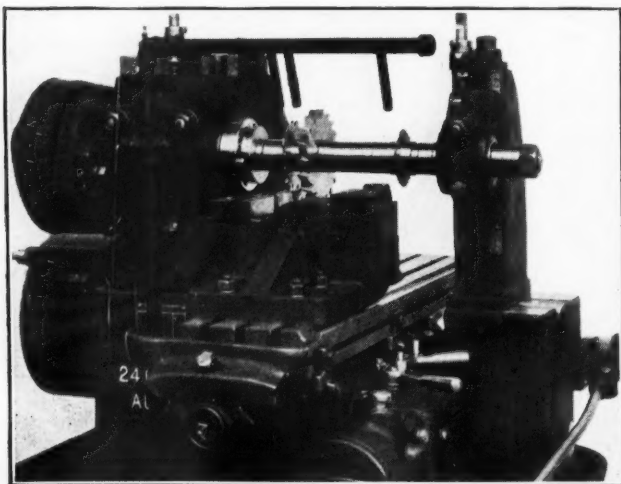
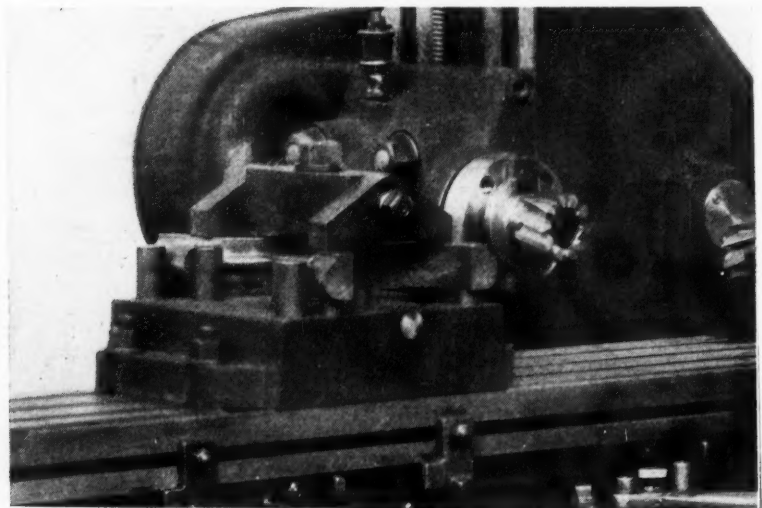
Right—Fig. 5. Milling power take-off shifter fork, which is shown in Fig. 5A above



Left—Fig. 6. Saddle-milling and slitting seat spring clamp. Right—Fig. 6A. The seat spring clamp



Right—Fig. 7. Milling parting faces on differential bearing caps. Surfaces finished are shown above in Fig. 7A



Left—Fig. 8. Milling slots and facing main boss of shifter fork shown above

on two pieces for each pass of the table. Since the pieces are held in different positions, one piece is completed per pass, thus giving balanced production.

The next operation (Fig. 2) consists in milling round bottom slots in the forged steel low and high speed shifter forks. For this a 24-in. plain machine was selected, equipped with two 5-in. convex cutters. The steel forging is milled from the solid, with the cutters revolving at 62 r.p.m. and the table feeding 2.4-in. per minute. This makes it possible to turn the job out in one minute, and, allowing for delays of one sort or another, a production of 52 pieces per hour is obtained.

Universal Fixture Table

A universal fixture is mounted on the table and holds two of either the low-speed or high-speed shifter forks abreast. The work sets over a central stud and is located from the finished fork by a large diameter stud. A strap clamp over the main boss holds both pieces in position. The work feeds beneath two convex cutters on an arbor, finishing two pieces per pass. The apparently slow feed specified on this job is due to the fact that the slot is milled from the solid. A large supply of cutter lubricant is poured over the cutters.

One hundred and ten pieces are finished per hour in the next operation (Fig. 3), that of milling the bolt bosses of gray iron differential bearing caps. Two 1½-in. spiral end mills revolving at 212 r.p.m. remove 3/32 in. stock. With the table feeding at 8.3 in. per min., the time per piece is 0.476 min. A fixture is mounted on the table and holds two pieces in line. The work sets on its finished parting face and is located by three fixed stops. Each piece is held against the locating stops by two spring plunger stops. A balanced clamp over the top holds both pieces down against the fixture. The bolt bosses on one piece are milled, the table is rapid-traversed between the cuts, and the bolt bosses on the other piece are then milled, thus giving two complete pieces per pass. In this operation the automatic feature of the machine results in an important saving. Small diameter end mills are used, in order to decrease the feed per revolution of the cutters.

A simple but interesting operation is presented in Fig. 4. Here two 6½-in. side mills are straddle-milling the arm of a steering shaft bearing. The material is gray iron, and ⅛-in. stock is removed, feeding at the rate of 8.3 in. per minute. The cutter speed being 66 r.p.m., it is possible to turn out a piece in 1.05 minutes with an excellent finish. A fixture is mounted on the table and holds one piece with the arm in a vertical position. The work is located from two reamed holes at right angles to each other. A clamp over the top holds the piece in position. The work feeds between two half side mills on an arbor, finishing one piece per pass. In estimating production of this kind, 15 per cent is usually allowed for miscellaneous delays.

An example of the savings which can be effected through the use of cutter gangs is shown in Fig. 5. Two 8 in. and 2 in. half side mills are mounted on a 1¼ in. arbor and revolve at 49 r.p.m. The operation is that of milling completely a power-take-off shifter fork. The part is a steel forging and from 1/16 to ⅛ in. stock is removed, the table feeding at 5.1 in. per minute. This gives a production of about 42 pieces per hour. The photograph shows a universal fixture mounted on the table, which is a progressive type, so

that two separate operations can be performed on one piece. The work is first milled between forks by the two large side mills on the arbor. It is then removed and placed in the position shown in the photo, so that the smaller side mills on the arbor will mill the faces of the fork. In this way two operations are performed on a piece at each pass of the table. A fork of another size shown lying on the table will also be accommodated by the universal fixture. The work is located over a central stud and is clamped over the center boss. Another clamp holds the piece down against a fixed stop beneath the work toward the cutters.

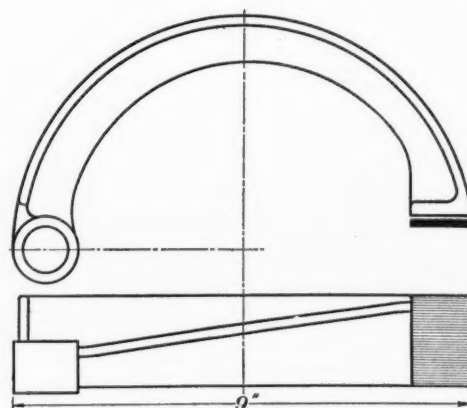
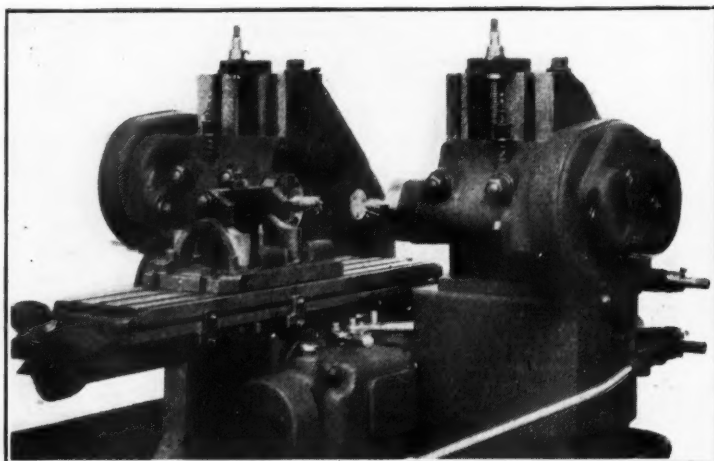
In Fig 6 we have two side mills of 6½ in. diameter each, combined with a 6 by 3/16 in. saw, revolving at 49 r.p.m. The operation is that of saddle-milling the bolt boss and sawing the slot on a seat-spring clamp, made of a steel forging. Stock to the amount of 3/16 in. is removed and the table is fed 3.87 in. per minute, giving a production time of 1.21 minutes. An angle-plate type of fixture is mounted on the table and holds one piece vertically, so that the cutters can mill beneath the work. The piece is located over a simple stud and by a pin in one of the drilled holes. A removable U washer over the end of the main boss clamps the work against the shoulder of the stud. By holding the piece in the position shown, the cutters mill beneath the work and produce a straight edge at the base of the cut on the bolt boss. Milling underneath in this way causes the chips to drop down out of the work and onto the table. A large supply of cutter lubricant is poured over the cutters during the milling operation.

The duplex method of milling with two cutters at work constantly, one in each head of the machine, fits in well on the next operation (Fig. 7). The parting faces on gray iron differential bearing caps are being milled by two 4 in. shell end mill cutters revolving at 81 r.p.m. they take off ⅛ in. stock and the table feeds 8.3 in. per minute. The time per piece is 0.42 minute (124 pieces per hour). A simple fixture is mounted on the table and holds two pieces abreast, with their parting faces toward the outside of the fixture shown. The work sets on three fixed supports, is located by three fixed stops and is clamped over the top by four-point balanced clamps. It feeds between two shell end mills, with rapid feed between the cuts. This method gives two complete caps per pass of the machine table.

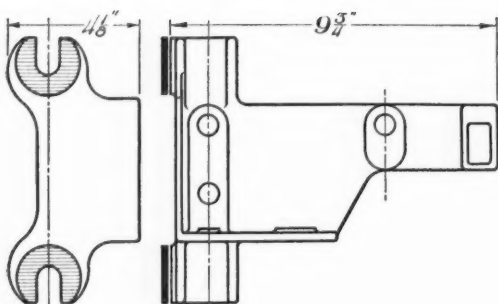
"Plain Automatic" Machine

Fig. 8 shows a 24 in. "plain automatic" machine milling two slots and facing a main boss on drop-forged low and high speed shifter forks. One-eighth inch stock is removed by the cutters shown in the illustration, which revolve at 49 r.p.m., and the work feeds at 3.87 in. per minute. The time per piece is 2.28 minutes. A progressive type fixture is mounted on the table and holds two pieces abreast, the pieces being toward the cutters behind the fixture. The first piece is held to mill one slot and face the main boss, while the second piece is held to saw the bolt boss. Both pieces set over locating studs and are located about this stud by a fixed large-diameter stop between the finished sides of the fork. A clamp over each piece holds it in position for milling. The work feeds beneath a gang of cutters on an arbor, finishing one operation on two pieces, or one piece complete, for each pass of the table.

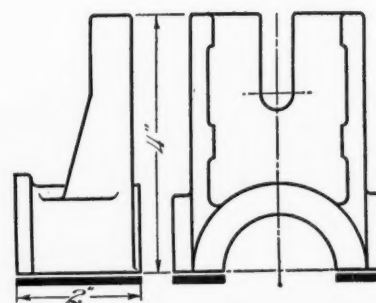
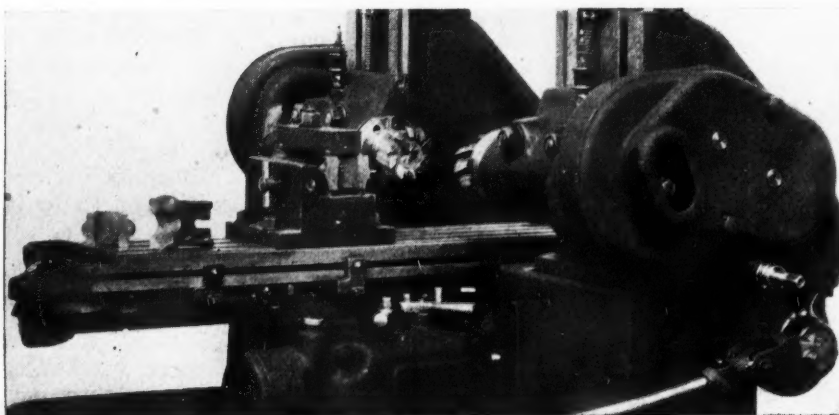
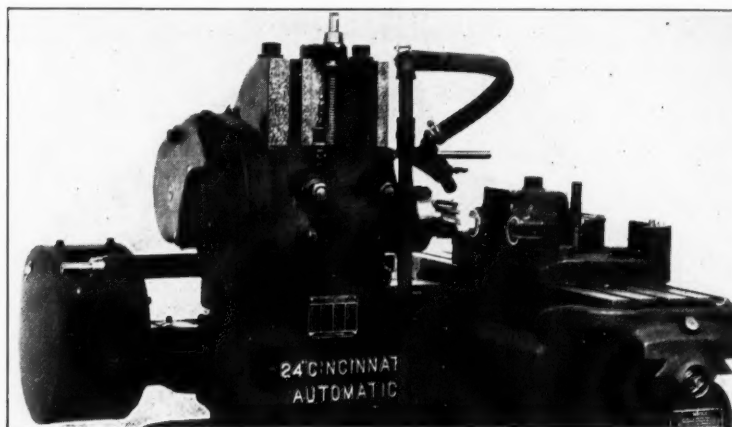
The slots in the blocks shown are used for locating the cutter gang for the milling operation. This is done by the use of ⅛ in. feelers. Here again a large



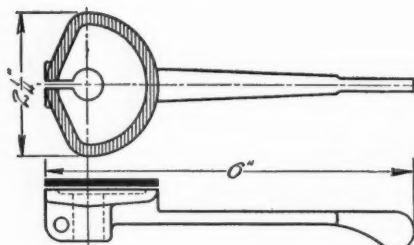
Left—Fig. 9. Surface milling cam surface on brake shoe, Fig. 9A. (above)



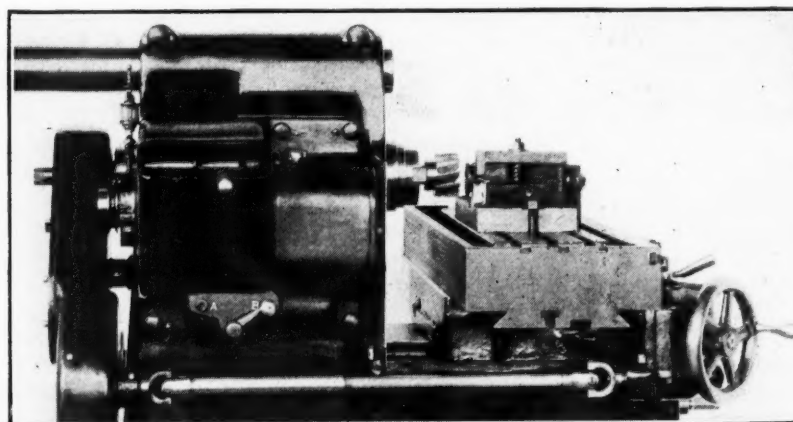
Right—Fig. 10. Milling bosses on pivot bracket, Fig. 10A. (above)



Left—Fig. 11. Milling parting surfaces on front axle shaft spacer and cap, Fig. 11A. (above)



Right—Fig. 12. Milling spark rod lever, Fig. 12A (above)



supply of cutting lubricant is advisable, and is supplied by the lubricant pipes shown.

Milling the boss for the cam on the countershaft brake shoes is the next operation (Fig. 9). Two 2½ in. shell end mills remove ⅛ in. stock when revolving at 127 r.p.m. and with the table feeding 6.4 in. per minute, production is 133 pieces per hour, or 67 pairs of shoes. A fixture is mounted on the table and is arranged to hold two pieces abreast—one inner and one outer piece. The work sets over a stud in the reamed hole on a fixed support and on a spring support at its outer end. A hand clamp holds the piece against a locating stop behind the outside face of the work. A strap clamp applied directly over the boss holds the work against the fixed support beneath the pad being milled. The work feeds between two shell end mills, finishing one pair of pieces per pass.

Machining Ends of Bosses

Fig. 10 shows the 24 in. plain automatic miller machining the end of two bosses on a cultivator pivot bracket, right or left. The work is done by a 3 in. shell end mill revolving at 103 r.p.m. and removing ⅛ in. stock from the malleable iron casting. When fed at 8.3 in. per minute, the machine turns out one piece each minute. A universal fixture is mounted on the table and is arranged to hold one piece of either a left hand or right hand. The work is located from two drilled holes and sets on three fixed supports. A clamp over the top holds the piece in position for milling. One boss is milled, the table is rapid-advanced, and then the other boss is milled. By this method the pro-

duction given above is obtained on either a right hand or left hand piece.

Fifty-four pieces per hour are turned out on the next operation (Fig. 11), in which the front axle shaft spacer and caps have their parting faces milled. The material is gray iron and two 4 in. shell end mills remove ⅛ in. stock, revolving at 81 r.p.m. Time per piece is 0.96 minute and the feed is 8.3 in. per minute. A simple fixture is again mounted on the table and holds one pair of pieces, one front axle shaft spacer and one front axle shaft spacer cap. Each piece sets on three fixed supports, is located by two fixed stops behind the bolt bosses and is clamped over the top by a strap clamp having two equalizing feet. The work feeds between two shell end mills, finishing one pair of pieces per pass. The faces being milled are too close together to rapid-advance between cuts, so the regular feed rate is used for the entire length of the pieces.

Our next illustration (Fig. 12) is taken with the part located on a simple and smaller machine known as the 18 in. plain manufacturing miller. Here the faces of the boss of spark rod levers are being milled by a 3 in. shell end mill, revolving at 117 r.p.m. The feed is 6.1 in. per minute, giving a time of 0.62 minute per piece. This equipment is used for facing the main boss on the casting. The piece is located from the lever end and by two fixed stops behind the flange. Two clamps hold the piece in position. With this machine, the table is rapid-advanced to the cut and is then tripped automatically to the feed rate by a dog. This is a safety precaution and also speeds up operation.

Lacquer Spraying Equipment Must be Kept Clean

POSSIBLY there is no single item which has more influence upon the final appearance of an automobile body finished with pyroxylin than cleanliness. This point has been stressed so often by the manufacturers of lacquer finishes that there are few users of this type of material who do not take the greatest pains to make sure that the surface to be finished is quite free from dust, oil and all other foreign materials.

Perhaps it has not been emphasized to the same extent, however, that the state of the equipment used in finishing has as much influence upon the final result as the condition of the surface to be finished. The spray gun and equipment, the air compressor, various hose lines leading to the spray gun, the exhaust system and all the other equipment used in the finishing room must be kept just as clean as the car body if final results are to be completely satisfactory.

The spray gun should always be kept clean. After each period of use it should be cleaned as carefully as possible and then left in solvent for a long enough time to soften up all the dried material which may be left on it. Unless this material is completely removed it will become loosened during the next period of service of the gun and, being forced out with the spray, will definitely mar the surface being finished.

After the dried material has been softened with solvent it can be removed easily by wiping the accessible parts of the gun and, by blowing air through it, the interior may be cleaned. When not in use all spray guns should be kept in dust and dirt-proof containers.

Obviously, it is essential that the finishing materials

should be kept free from foreign matter. Containers should never be left open except when absolutely necessary and then great care should be taken that they are opened in rooms where there is no dust flying about and that nothing has an opportunity to drop into them. The material container used in conjunction with the spray gun should be closed after each day's work. All dried-on material should be carefully removed just as it should be from the spray gun.

The hose lines leading to the spray gun deserve more attention than they sometimes get. If they are metal-lined this will be less essential than if rubber-lined hose is used. To make sure that the full supply of material comes through and that it contains no particles of matter which might foul the finished surface, the hose should be carefully blown out at frequent intervals, first pouring into it some solvent material to loosen up any substance which may have dried on.

The exhaust system requires frequent cleaning if it is to function properly and it will usually be found advisable to clean this part of the equipment daily. The longer deposits are allowed to build up the more likelihood is there that some of them will get knocked off and later be found on the finished surface.

These practical reasons for insisting upon cleanliness in everything connected with the application of pyroxylin finishes are in addition to the well-known psychological advantages of cleanliness in obtaining more careful workmanship, and there are few ways in which careless workmanship in making a car becomes more apparent than in the appearance of its finish.

6556 Buses Now Operated by 339 Electric Railways

Only 16 companies with total of 73 buses in field in 1921.
Major portion of vehicles used in city or suburban service.
Buses and trolleys both used on same route in many cases.

THE rapid growth in electric railway-operated buses is shown in a survey recently completed by the American Electric Railway Association. Since 1921, when 16 electric railways operated 73 buses, the use of buses has increased until in September, 1926, there were 339 companies operating 6556 buses.

These figures are particularly interesting when it is considered that there are about 850 electric railway companies in the country, so that within less than five years about 40 per cent have found it necessary or advisable to enhance their transportation facilities by using buses. The rate of increase this year is somewhat less than it has been in past years. Whether this means that future progress will be slower than the past because the more progressive companies have already adopted buses is not evident. It appears fairly certain, however, in view of present trends, that even with a slower rate of growth in the number of companies operating buses the number of buses in operation will continue to increase fairly steadily.

The major portion of railway-owned buses are used in city or suburban service—over 50 per cent of the companies reporting giving this service as the only one in which buses are used. The remaining companies provide interurban or a combination of interurban with city or suburban service in about equal proportions.

This division is what might be expected, since a considerable number of bus lines are instituted by railways as feeder lines, tapping portions of the city or suburban areas which have been developed too recently to have rail service.

14,900 Miles of Routes

There are about 14,900 miles of bus routes operated by electric railway companies. Interurban lines make up nearly 10,500 miles, city or suburban service about 3000 and the remainder is unclassified.

The importance of the feeder service provided by motor coaches is evidenced by the fact that of some 230 companies reporting, nearly 48 per cent employ their buses as feeders—27 per cent in that service alone—and the other companies add to the feeder service various combinations of auxiliary and coordinate service.

More mileage is covered by buses operating in coordinate service, however—nearly 50 per cent of the total being devoted to this type of service—while feeder service covers some 15 per cent of the mileage, and auxiliary about 23 per cent of the total.

Although considerable publicity has been given at various times to substitution of buses for trolley cars,

the association's report indicates that such substitution has not been of very great importance in relation to the total mileage of rail lines. Of 184 electric railway companies operating about 9400 bus route miles, only about 960 of these miles, or 10 per cent, represent substitutions for rail lines. One interesting feature about this item is that for each mile of rail line eliminated, 1.2 miles of bus route were substituted, indicating that the buses are employed to give more complete service

TABLE 1
Number of Buses in Operation

1920	70
1921	140
1922	350
1923	1100
1924	2700
1925	4500
1926	6600

TABLE 2
Bus Service Furnished by Electric Railways

Type of Service	No. of Companies
City or suburban	155
Interurban	64
City or suburban and interurban	68
Information not available	52
	<hr/> 339

TABLE 3
Number of Companies Operating Motor Buses

1920	18
1921	28
1922	59
1923	100
1924	190
1925	250
1926	339

than had been possible with the rail cars.

Although it has been maintained by the electric railway interests themselves that duplication of transportation facilities is an economic waste, it is interesting to note that of the 14,900 miles of bus routes operated by them over 3000 miles parallel existing rail lines

operated by the same companies. This tends to bear out the opinion of the bus industry that motor vehicles provide a quite different type of transportation than can be provided by rail cars and that if the public desires such transportation the presence of a rail line should not necessarily be considered as an indication that buses are not needed.

In this connection the report points out that duplication has been made possible by the operation of the two types of service by the same company so that coordination of facilities is permitted to an extent which might be impossible if the lines were directly competitive.

Seating Capacity Higher

There have been opinions expressed lately that the trend during the past year has been toward buses of smaller seating capacity, taking care of peak requirements by additional buses rather than by carrying empty seats over the routes throughout the day. That this trend is not present in buses operated by railways is shown by the fact that a weighted average of seats per vehicle for 1926 shows an average of 27.6, slightly higher than last year.

The average seating capacity of some 4700 single-deck buses this year is 24.7 compared with 23.7 last year, while double-deck capacity has remained unchanged at 62.9. Nearly 35 per cent of the single-deck buses covered in this part of the survey are of 29-passenger capacity, 21 per cent are 25-passenger, 17 per cent are

buses seems to be to permit standees, over 72 per cent of the companies replying to this question stating that standees were permitted. Practically all of these companies operate single-deck buses only and where double-deckers were also operated there appear to be few instances when standees are permitted in them.

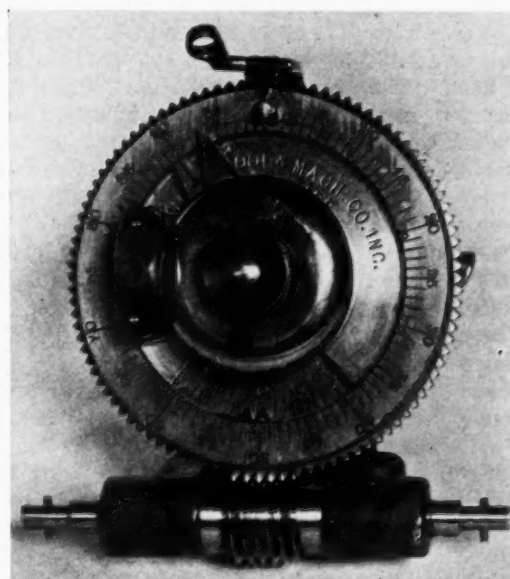
In some instances the number of standees is limited by regulations made by the operating company or, as in the case of Massachusetts operations, by State restrictions.

In concluding the report a statement was made which appears to be of particular importance in furthering the legitimate and profitable use of buses by electric railway companies. It was suggested that indications are that bus operation in many cases is being patterned too closely upon railway practice and that if it is studied and treated as a problem separate from rail operation better satisfaction with operating results is likely to follow.

Viking Stop Counter

A DEVICE for automatically stopping a machine after a rotating member thereof has made any predetermined number of revolutions from 1 to 9750, has been placed on the market by the Viking Tool & Machine Co., 745 Sixty-fifth Street, Brooklyn, N. Y. This device is applicable to various types of coil winding machine where a predetermined number of turns of wire is desirable; to lineal measuring machines, power presses, screw machines, chemical mixing machines, textile and printing machinery.

Four styles of counter are made, the one illustrated herewith being an electrical type. With this device a bell rings an instant before the machine is stopped and the stopping is accomplished by opening an electric switch. A second type is equipped with a mechanically operated lever design to disengage a clutch. A third style operates a bell or other signal, warning the operator that the machine has completed the desired production. The fourth style constitutes a plain counter by means of which the number of revolutions or strokes made by a machine can be readily determined through observation of the dial.



Viking stop counter

TABLE 4

Bus Route-Miles by Types of Service

Types of Service	Miles of Route
City or suburban	2,900
Interurban	10,400
Not designated	1,400
	14,700

TABLE 5

Type of Bus Operation	No. of Companies
Feeder	61
Coordinate	69
Auxiliary	40
Feeder and Coordinate	15
Feeder and Auxiliary	17
Coordinate and Auxiliary	11
Feeder, Auxiliary and Coordinate	16
Total	229

TABLE 6

Type of Bus Operation	Route Miles (One Way)
Feeder	1300
Auxiliary	2100
Coordinate	4400
Unclassified	1200
Total	9000

21-passenger, while the remainder consists of all sizes from 5 to 33-passenger vehicles.

In the double-deck class, 49 per cent seat 67 passengers, 14 per cent have a capacity for 58, 13 per cent for 60 and the remainder range from 51 to 64.

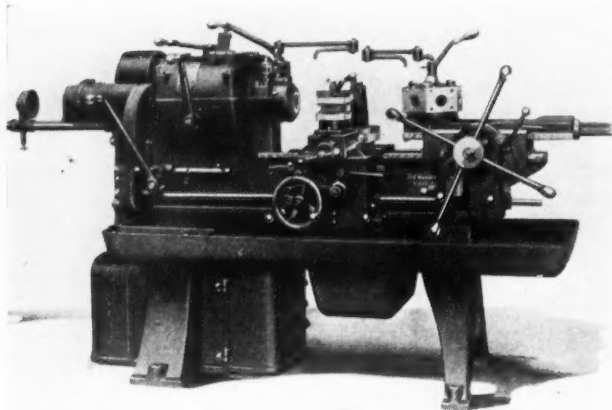
The general practice among railway operators of

Warner & Swasey Turret Lathe Redesigned; Three Types of Head Offered

New No. 4 universal machine furnished with either six-speed all-gear, six-speed cone or 12-speed all-gear head

THE No. 4 universal turret lathe of the Warner & Swasey Co., Cleveland, Ohio, has been redesigned and is now known as the New No. 4. It has a bar capacity of 1½ in. and a swing over the ways of 16 in., and is furnished with three different types of head, viz., a six-speed all-gear, a six-speed cone, and a 12-speed all-gear.

With the six-speed all-gear head, which is of en-



Warner & Swasey New No. 4 universal turret lathe, motor-driven

tirely new design, twice as much power is delivered to the spindle as with the cone head. The six spindle speeds range from 45 to 423 r.p.m., and any one of them is quickly available through levers conveniently located on the head. Two reverse speeds also are provided. The gears run in oil and the shafts are mounted in taper roller bearings, while the spindle is mounted in the usual babbitt-lined bearings. The power and wide range of speeds make it possible to take multiple cuts simultaneously.

The motor is located in a pedestal leg at the head end of the machine. Both end walls of the compartment are hinged, thus giving easy access. Provision is also made for mounting the motor on the vertical plate at the head of the machine.

The cone type of geared friction head drive provides six spindle speeds, employing a three-step cone and back gear. The modern type of belt shifter has made it possible to shift from one step of the cone to another quickly, and in certain types of quantity production work where spindle speeds are changed only occasionally the cone type of head is often preferred. The back shaft is fixed in position, with the gears always in engagement. The front spindle bearing is 3

in. in diameter by 4½ in. long; the rear bearing, 2½ in. in diameter by 3¾ in. long.

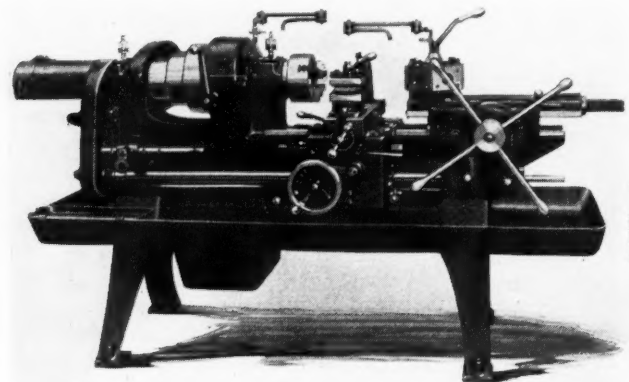
By running both pulley countershafts forward at different speeds, the number of spindle speeds available can be increased to 12, but there is then no reverse movement of the spindle.

The 12-speed all-gear head provides 12 spindle speeds ranging from 30 to 760 r.p.m. More than twice as much power is delivered through the 12-speed head than through the cone head machine, and this type is even more powerful than the six-speed type previously discussed.

The speed changes are obtained through slide gears. The 12 speeds give an excellent selection of cutting speeds for all diameters and classes of work. The gears run in oil and the friction clutch is easily adjusted.

This type of head is recommended for work requiring extreme power, or for work requiring a great variety of spindle speeds. Very heavy cuts may be taken and both "multiple cuts" and "combined cuts" may be operated at the same time on work ranging up to the capacity of the machine.

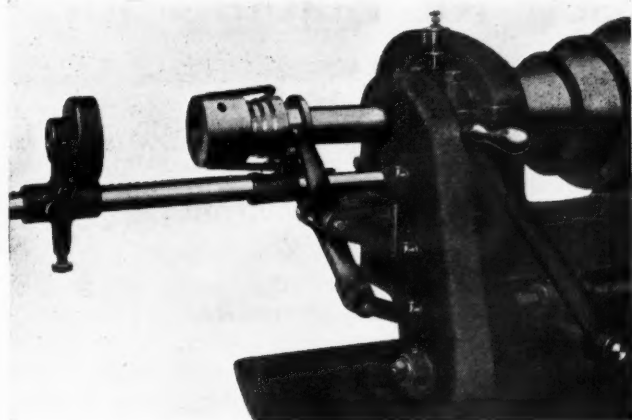
The automatic chuck and bar feed is operated by the long lever in front of the head. This grips or releases the work instantly. A pivoted operating yoke with rollers engaging the wedge is an improvement which substantially reduces the effort required to operate the chuck. A stepped wedge on the spindle, operating fingers provided with rollers, automatically adjusts the collet for slightly varying diameters.



Belt-driven type of the New No. 4 Warner & Swasey turret lathe

The distinctive feature of the No. 4 universal turret lathe, the universal cross-slide carriage, has been strengthened and provided with power longitudinal

feed, either left or right, and power cross feed in either direction, as standard. The square turret provides four cutter positions in addition to the one in the rear tool



Detail view of chuck and bar feed

post. These cutters may be operated simultaneously with the tools on the hexagon turret. Four independent, adjustable stops carried on a stop roll throw out the longitudinal feed. The feeds are all available from the apron of the carriage. Feeds may be reversed. In direction of feed, the cross-slide carriage is independent of the turret. A large graduated dial is fitted to the cross slide, with adjustable indicators for accurately gaging the depth of cut. The square turret is quickly indexed without lifting from its seat. Accurate alignment and adjustment of the square turret are assured by hardened and ground tapered wearing surfaces.

The turret slide and saddle unit is of the well known Warner & Swasey type. A supplementary taper base and taper gibs provide for vertical and horizontal adjustments to maintain the alignment of spindle and tools. The turret stud is tapered, providing adjustment for wear.

Six power feeds are obtained through a gear box mounted in the front of the saddle. Independent adjustable stops operate for each turret face and may be set to throw out the power feed at any point desired. These feeds are independent of the cross-slide carriage feeds.

The New No. 4 universal turret lathe is offered either as a bare machine or with a standard bar or chucking equipment. The bar equipment will handle a great majority of the work within the cutting range of the machine and consists of the following tools: Flanged tool holder, single-cutter turner, multiple-cutter turner, end-facing tool, center-drilling tool and self-opening die head.

For light work, where piloting is unnecessary, or for center piloting on quantity work, the plain set of chucking tools is offered, including a multiple-cutter head, flanged boring cutter, multiple-turning head, drill holder, vertical slide tool and floating tool holder.

A set of chucking equipment with overhead pilots is also offered where additional rigidity is necessary. This set differs from the plain set of chucking equipment in only two tool stations. An overhead piloted multiple-turning head is substituted for one multiple-cutter head, and an overhead pilot bar is added to the multiple-turning head which already carries an ear for this purpose.

The taper attachment will turn tapers up to 3 in. to the foot, in lengths of 6 in. The operation of the square

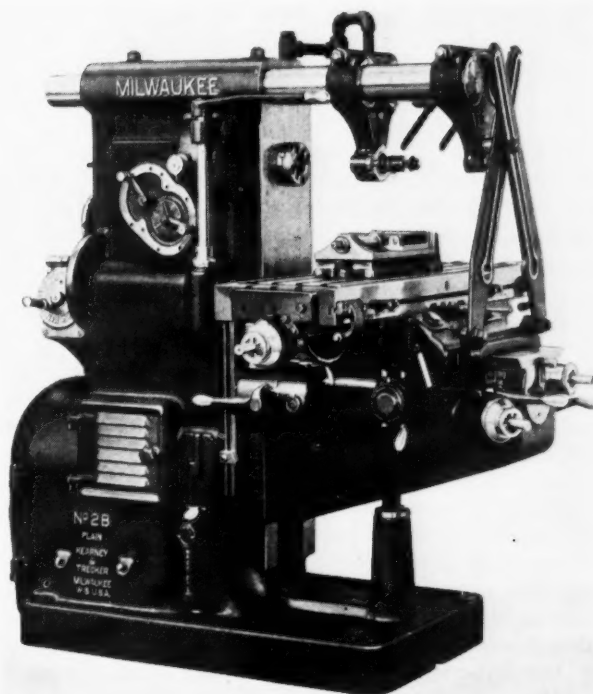
and hexagon turrets is not affected by the installation of the taper attachment.

The screw chasing attachment cuts threads from 4 to 32 pitch, operating by means of a leader and follower. A micrometer screw attached to the cross slide provides a fine adjustment for the depth of cut.

A New Milwaukee Miller

A NEW No. 2 milling machine, made in manufacturing, plain and universal types, has been announced by Kearney & Trecker Corp., Milwaukee, Wis., and embodies all of the special features of the new Nos. 4 and 3, brought out in April and August last, respectively.

The No. 2 is a smaller machine than both of the other models. Its features include taper roller bearings, an option on belt and motor drive at the same price, the same column being used in both cases; all-gear drive from either the belt pulley or the motor pinion; power rapid traverse in three directions, except on the manufacturing type, which has power feed and rapid traverse



Kearney & Trecker's new No. 2 milling machine

of the table only; self-oiling universal joints in all feed and power rapid traverse shafts; duplicate front and rear control levers; multiple disk friction clutch; central lubrication for column, knee and saddle; automatic low-pressure coolant system with cut-out and improved distribution system on all machines; quickly removable lubrication and cutter coolant pumps; enlarged coolant return channels and six pockets in the table.

A NEW asbestos brake lining is being manufactured especially for heavy buses by the Keasbey & Mattison Co. of Ambler, Pa. The lining is extra stiff and dense to meet the requirements of bus service. The various stages in the manufacture of asbestos brake lining from the crude asbestos rock, as it is mined at the Canadian mines of the Keasbey & Mattison Co. to the finished product, were pictured at the recent exhibition of the National Standard Parts Association in Chicago.

Opportune Time Chosen for Stabilization of Truck Retail Sales Policies

Prosperity places industry in good position to tighten up on credit terms. Output nearly 10 per cent ahead of 1925.

By Norman G. Shidle

THE truck industry is romping down the 1926 homestretch with most companies having produced thus far at about the same rate as last year, with a few having moved at a much faster pace than ever before and with still fewer falling materially behind their own 1925 performances. In this last quarter, too, is coming the critical point in the truck industry's first serious attempt to hold financing terms to a conservative basis. The outcome of this latter effort perhaps has more import than any other single factor as the commercial vehicle makers get ready to go to the post for 1927.

As in the passenger car field, prosperity in the truck industry now is being divided according to the individual capabilities and the soundness of individual company policies, rather than according to type, size or price of product manufactured. The best figures available, for example, indicate that Ford's 1926 truck production may fall behind his 1925 total by as much as 30,000 or 40,000 vehicles. But the truck industry as a whole will be ahead of last year by something like 8 or 10 per cent, while at least one maker in the light delivery field is going to better his last year's record by a little over 100 per cent. Others in the same class are recording material increases.

But it is in the production and sale of heavier trucks that the question of retail financing is of major importance. It is among producers of these bigger vehicles that the worst abuses have appeared in the largest quantity and it is in the same group that most serious and sincere efforts are being made to improve conditions.

Selling to Irresponsible Operators

There still is a good deal to talk about the fallacy of selling trucks to irresponsible operators. At the S. A. E. transportation meeting in Boston last week one New England operator who has been unusually successful himself made a more or less impassioned appeal to truck manufacturers to stop selling to men who don't know how to run trucks profitably and who simply furnish destructive competition to the stable operators, the only customers profitable to the truck maker in the long run.

The president of one of the smaller truck producing companies wrote just the other day that "inexperienced and incompetent people have been set up in business with the result that, after depreciation, the equipment had to be repossessed due to payments not being made.

"It seems," he continues, "that an individual and

the members of his family will do almost anything to avoid embarrassment of having his passenger car repossessed, but with a truck this embarrassment does not exist."

Lack of this pride element in influencing men to keep up truck payments also was emphasized in a recent conversation with several executives of one of the larger truck organizations.

So much talking has been done about this particular point that further discussion is as interesting to a good many truck executives as a tenth encore by the village soprano at a church social. And the very definite measures which are being undertaken at present to limit retail financing terms and to require at least 20 or 25 per cent down payment would indicate that the old song need not be sung much longer.

Truck manufacturers and operators, of course, are not in complete agreement as to any fixed set of rates and terms which should be considered as "sound." Most truck executives, to be sure, seem to feel today that 20 per cent down and 18 months to pay constitutes a thoroughly sound basis upon which to sell trucks. Nearly all of them, however, see the possibility of perfect safety in selling on longer terms in certain specific instances. One man in constant touch with truck operating groups believes that trucks should be sold to big fleet operators, such as department stores, on open account just as are the other goods which those fleet operators buy. Some truck executives agree that vehicles can and should be shipped to such gilt-edged credit risks without any down payment. But it is pretty generally thought today that the only operator who should be granted long terms is the one who basically doesn't need them.

Truck manufacturers scarcely could have found a better time to attempt seriously to stabilize their retail financing situation. Admitting that some curtailment in sales may be necessary to achieve their ends, they are going at the problem just when they are completing another record production year. Truck output for 10 months this year is 9.6 per cent ahead of production for the same period in 1925. The replacement market, growing for some years past, by 1927 will have achieved quite respectable proportions—possibly it will account for some 125,000 vehicles, thus assuring a good basis upon which to build 1927 sales records. And business conditions in general remain stable, with 1927 prospects fairly bright.

All in all, an excellent time has been chosen to begin vitally needed revisions in marketing practices.

EDITORIAL

Man-Hour Output

THE man-hour output of the automobile industry was 210 per cent greater in 1925 than in 1914. Its increase in efficiency was far larger than that of any other manufacturing industry.

But the increase wasn't steady; it went up from 1914 through 1923 without deviation, but the man-hour output index, as shown by Department of Labor figures, dropped from 295 in 1923 to 189 in 1924. The figures simply confirm the well understood fact that production at somewhere near capacity is necessary in the automotive industry if efficiency is to be maintained.

Figures for 1926 are not yet available, but will be interesting when procured. Output has been at a high level this year for the industry as a whole, but two factors probably have influenced man-hour production figures unfavorably. The first of these is the relatively low production experienced in several very large plants; the second is the constantly increasing diversity of models and types in nearly every manufacturer's line. If, in the face of these two factors, the man-hour output index of the automotive industry is as high in 1926 as in 1925, the manufacturers may well pride themselves on the economy achievements of their production departments.

The trend toward more diversified lines seems likely to continue through 1927, although past records indicate that individual companies frequently swing from many models to few, from few to many and back to few again with an almost cyclical movement. Nevertheless, the current dominance of style as a sales point is almost certain to continue for some time and, consequently, will have to be taken into consideration in any discussion of future production economies.

Ratio of Cash Sales High

FOR several years it has been generally agreed that somewhere between 75 and 90 per cent of all automobile sales were being made on a time payment basis. So often has that statement been made that its accuracy has come to be accepted more or less without question.

Just lately, however, specific figures have been made public regarding typical groups of transactions which indicate that the generally accepted figure for the percentage of time sales has been too high. Out of 40,000 recent sales by Dodge Bros., Inc., for instance, only 54.9 per cent were financed; 45.1 per cent were sold for spot cash. Hare & Chase, Inc., in a recent bulletin, says that the Dodge figures check very closely with its obser-

vations covering accounts of some 4000 dealers handling the products of 15 different manufacturers.

While these two sets of data alone scarcely can negative completely the previously accepted figures, they would seem typical enough to raise some question again regarding the matter. Perhaps after all only 65 to 70 per cent of our cars are being sold on an instalment basis. The latest figures compiled by C. C. Hanch indicated that 36 per cent of new cars sold thus far in 1926 were paid for in cash.

Capacity of Valve Ports

IT has been observed repeatedly that a port of substantially square section, such as is obtained with sleeve valves, has a greater capacity for passing air or combustible mixture than a poppet valve of the same effective opening area. In other words, if ports and valves of the same total opening area are used on an engine of given bore and stroke, and the period of opening is substantially the same, then the engine with the substantially square ports will have the greater volumetric efficiency at any given speed.

If the comparison is made with valves in the head, the reason evidently is that an opening which is comparatively long and narrow, has a lower coefficient of efflux than one whose dimensions in directions at right angles are substantially equal. When air or any other fluid enters a restricted passage, the stream contracts inside the passage to a smaller section than that of the passage itself. It is the smallest section of the stream or jet which determines the resistance to its flow, and the additional resistance due to the contraction of the jet is allowed for in calculations by the use of a coefficient of efflux or of discharge.

A certain width of the port or valve passage near the walls is ineffective, and it can easily be seen that the effect of this contraction of the stream will be greatest with a very elongated and least with a square section, owing to the fact that with equal areas the length of the periphery is the greater the more elongated the section.

In the case of a poppet valve in an L-head engine there is a further cause for a reduction in the capacity of an opening section of given area in that the charge does not flow through all parts of the valve passage at uniform speed. Too frequently not sufficient clearance is allowed between the valve head and the valve chamber wall. Even where this clearance seems ample, the density of flow through the valve will always be a maximum on the side toward the cylinder, and any inequality in the rate of flow increases the resistance.

AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Thursday, December 2, 1926

Factories Curtail Schedules as November Sales Decline

PHILADELPHIA, Dec. 2—November automobile and truck production was under October and the decline is expected to continue this month, on the basis of schedules already laid out. However, the downward trend has been pursued gradually, and does not represent drastic curtailment in any sense. The industry is taking care of its dealers in a season which has shown somewhat more than the usual recession in retail demand, and will be in good condition to resume active operations with the opening of the 1927 market.

The most urgent cause of concern just now is the state of used car stocks. These have mounted rapidly in the last few months, and represent a good deal of burden for retailers. Special sales of the vehicles are being advertised in some sections, and they often carry offers of low down-payment financing arrangements, although experience has shown that from 5 to 10 per cent of used cars financed on less than 40 per cent down are repossessed.

Inventories of manufacturers are within reasonable bounds and it is hoped and expected that in the period of comparatively low production the retail end will be enabled to cut down used car stocks.

Business of original equipment makers naturally has declined with car and truck production and there has been a falling off also in the wholesale and retail business of accessory manufacturers whose sales depend to a large extent on the activity in new car sales.

(Continued on page 952)

G.M.C. to Build Plant at Stockholm

PHILADELPHIA, Dec. 1 — Dispatches from Stockholm, Sweden, today show that General Motors Corp. has received formal permission for the erection in the Port of Stockholm of a large assembly plant, with a capacity of 6000 automobiles yearly. The permission was granted after several weeks of negotiation.

The site comprises about 5¼ acres and the price approximated \$125,000. Work on the plant will be started at once and when completed it will employ about 500 men. It is expected that the plant will assemble cars for all Scandinavian and adjacent countries.

By operation of the plant General Motors will be enabled to sell its cars in this territory at somewhat reduced cost owing to savings in ocean freights and duties. For each car assembled at Stockholm and reexported the duty paid for parts will be refunded.

Bootlegger Menaces Instalment Selling

Supreme Court Decision Stirs Finance Action — Bond Buyers, Says Wheeler

NEW YORK, Dec. 2—The bootlegger has now become a serious hazard in the instalment selling of automobiles, as a result of the Supreme Court decision last week upholding the Government's right to confiscate mortgaged automobiles carrying liquor, and C. C. Hanch, general manager of the National Association of Finance Companies, is in New York today conferring with attorneys on legal points connected with the decision.

Meanwhile Wayne B. Wheeler, head of the Anti-Saloon League, declaring that automobile salesmen and manufacturers were unduly disturbed over the decisions, said that all that was required for the protection of the seller was a bond to be posted by the buyer as guarantee that the motor car would not be used for transporting liquor. The trade, however, does not appear to share Mr. Wheeler's opinion that this is a simple or practical way out of the difficulty.

Must Choose Weapons

Some attorneys are of the opinion that by one of its decisions the Supreme Court requires the Government to elect to proceed either under the Volstead law or the old revenue law and that if it proceeds under one it cannot invoke the other.

The court ruled in a Kansas case that the State law providing for confiscating a car in which liquor is being transported is valid, though the owner of the car may be innocent. It was cited that the car had been used without the knowledge of the owner and that the person taking the car was acquitted of the liquor charge. There was no conflict with the fourteenth amendment prohibiting the taking of property without due process of law, the court held.

In a case from Washington State the

FORD CLOSES DOWN; DENIES NEW CAR

DETROIT, Dec. 2—The Highland Park and River Rouge plants of Ford Motor Co., were closed down Tuesday and it is reported they will not reopen until next week. A few departments in each plant continued operations but a majority of the departments closed. Officials of the company declined to discuss a report here that many of the men had been laid off until the first of the year.

The closing is called an annual event to give the company an opportunity to take inventory and to make necessary plant repairs and changes.

The company has denied that dealers have been advised that a light six-cylinder car would be introduced in January and that a straight-eight in the medium priced field would be available in mid-year.

court held that when a liquor-laden automobile is taken under the prohibition law, the Government cannot later invoke the drastic provisions of the old internal revenue laws in such a way as to deprive innocent owners of the vehicle, such as automobile companies selling on the instalment plan, of all right to seek restoration of their property.

Democrats to Vote Excise Tax Repeal

WASHINGTON, Dec. 2—Democratic members of the House ways and means committee voted unanimously today to support complete repeal of the automobile excise taxes and authorized a special sub-committee to draft and prepare for introduction in the House next week a tax reduction bill which will relieve not only further payment of automobile excise taxes but which will reduce Federal taxes approximately \$350,000,000.

Rep. J. N. Garner, ranking minority member, began work immediately on the bill which will repeal all the so-called nuisance taxes and reduce corporation taxes from 13½ to 11 per cent.

Irish Dealers Organize

DUBLIN, I. F. S., Nov. 20 (by mail) —The Society of Irish Motor Traders has been formed here to encourage, promote and protect the automobile trade in the Irish Free State. Membership is to be divided into four classes —vehicle distributing members, wholesale trade members, retail trade members and honorary members.

Motor Regulation Called Public Need

Railway Brief Says Independent Body Necessary to Decide Public Interest

WASHINGTON, Dec. 1—The position of the railroads of the country on the question of Federal control and regulation of interstate motor transportation was outlined today in a brief filed with the Interstate Commerce Commission by the Association of Railway Executives.

The brief stressed the fact that the investigation now being made by the I. C. C., was initiated by the automobile industry, "having its inception with a meeting in Chicago in May, 1925, of officers of the National Automobile Chamber of Commerce." Alfred P. Thom, general counsel of the railroads, in presenting the brief, declared that there had been intimations in the record that the investigation had been initiated by the railroads for "selfish" interest, and that the railroads wished to deny it emphatically.

Would Serve Public Best

The brief admits that the railroads of the country would like to see regulation of transportation by motor vehicles doing an interstate business, declaring that only in this way "can the interest of the public best be served."

Discussing its belief of the need of some regulation, the brief declares that "the importance and need is indicated not only by the public interest but is indicated by the extent to which regulation has been resorted to by the states in response to the necessities which have come up. Thirty-eight states, out of 48, have some kind of regulation of carriers engaged in interstate commerce. We feel that Congress may approach this subject from the standpoint of unlimited power over the whole question of regulating interstate commerce carried on by motor vehicles on the highways. Having this unlimited power, it may limit itself and occupy only a part of the field, and may leave another part of the field—that which ordinarily comes within the police powers of the state—to regulation by the states."

May Have to Make Choice

The introduction of motor transportation as a common carrier must be recognized by the public, but the question which now confronts the public, it is pointed out, is whether or not motor transportation shall supplant railway transportation, in part, or wholly, or to what extent. "For example, if the effect of the introduction of this new agency into a given territory will be to so impair the earnings of an existing transportation facility there that it can not continue to satisfy the public needs, the question properly arises: Where does the public interest lie? Does it lie in taking the substitute and

doing away with the existing facilities, or does it lie in preserving the existing facilities and not having the substitute? That is the question for some independent body to determine. If the effect of the new system of transportation will be to destroy the old one, then somebody must determine whether it is in the public interest that it shall have that effect."

Shippers Not Asking Truck Regulation

NEW YORK, Dec. 2—The Highway Transportation Committee of the National Industrial Traffic League in a report at the November meeting challenged the pertinence of the movement to regulate common carrier trucks in interstate commerce, saying there is no visible demand on the part of the shipping public for such regulation.

The report outlined that interstate motor truck commerce furnishes a service unobtainable in other traffic agencies; that it enables the conduct of business with smaller reserve stocks, reducing capital investments; that the fly-by-night truckman is rapidly disappearing; that the number of truck or bus owners favoring regulation is only a small percentage of the whole, and that there is difference of opinion among those favoring regulation as to whether it should be Federal, State or a combination of the two.

Erskine Reports Assets \$53,000,000, September 30

SOUTH BEND, Dec. 1—In a statement to stockholders of the Studebaker Corp. of America, A. R. Erskine, president, said the company had net working capital of \$41,000,000 on Sept. 30 and current assets of \$53,000,000. Earnings in the first nine months have been more than enough to pay the full year's dividends of about \$10,000,000 with nearly \$2,000,000 left over for surplus.

The statement was mailed with the Dec. 1 dividend checks.

Goodyear Sells R. R. Stock

AKRON, Dec. 1—Goodyear Tire & Rubber Co. sold at auction this week 7500 shares of common stock of the Akron, Canton & Youngstown Railroad, and 500 shares of Terminal Co. stock, to a syndicate for \$1,376,000. The stock was taken over by Goodyear in 1921 as security on a debt. Denial was made that sale of the stock had any connection with the court action over Goodyear control.

C. G. Officers Elected

DETROIT, Dec. 2—Christian Girl has been reelected president and Charles Getler, vice-president of the C. G. Spring & Bumper Co. Fred A. Cornell was elected secretary and M. D. Harrison, treasurer. New directors elected were J. G. Hamblen, Jr., R. A. Forsythe, F. A. Cornell and M. D. Harrison.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, Dec. 2—Trade continued in large volume last week, stimulated in some cases by colder weather and the beginning of holiday buying. Both stock and commodity price movements were irregular and inconclusive. Money rates tended toward somewhat greater ease, but displayed renewed firmness at the beginning of this week, with the approach of month-end disbursements.

A high level of industrial activity continued to prevail during October, according to the Federal Reserve Board. The general price level declined slightly and the volume of bank credit decreased. Wholesale trade was smaller than in September and was at a lower level than in October of any other year since 1922.

FREIGHT CAR LOADINGS

Railway freight car loadings declined seasonally during the week ended Nov. 13, numbering 1,112,886, as against 1,137,210 in the preceding week and 1,049,946 in the corresponding period last year. Loadings since the beginning of the year total 47,508,009, which compares with 45,542,695 a year ago and 43,169,496 two years ago.

PETROLEUM OUTPUT

Production of crude petroleum increased during the week ended Nov. 20, averaging 2,370,450 bbl. daily, as against 2,343,850 bbl. in the preceding week and 2,051,850 bbl. a year ago. Further reductions in crude oil and gasoline prices occurred last week.

BANK DEBITS

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended Nov. 24 were 3.9 per cent smaller than the total for the preceding week and 2 per cent below that of a year ago.

FISHER'S INDEX

Fisher's index of wholesale commodity prices stood at 149.4 last week, as against 149.2 a week earlier and 150 four weeks earlier.

FEDERAL RESERVE STATEMENT

Bills and securities held by the Federal Reserve banks increased \$45,100,000 during the week ended Nov. 24, with a gain of \$60,600,000 in discounts partially offset by declines of \$7,300,000 in open market purchases and \$8,200,000 in holdings of Government securities. Note circulation increased \$23,800,000, while deposits decreased \$38,800,000 and reserves \$26,800,000. The reserve ratio declined from 73.7 to 73.3 per cent.

During the same period, loans of reporting member banks increased \$37,000,000, with gains of \$38,000,000 in loans secured by stocks and bonds and \$7,000,000 in loans secured by Government obligations, and a decline of \$8,000,000 in "all other" loans. Investments decreased \$19,000,000 and net demand deposits \$75,000,000, while borrowings from the Federal Reserve banks rose \$41,000,000. Loans to brokers and dealers, secured by stocks and bonds, made by reporting member banks in New York City declined \$1,000,000.

Willys Welcomes Small Knight Car

Says Detroit Company Will
Fill Niche in Line—Not
Privately Interested

TOLEDO, Nov. 29—In a statement issued here, John N. Willys, president of Willys-Overland Co., said his interest in the new Detroit company headed by John A. Nichols, Jr., is entirely for the benefit of Willys-Overland stockholders and is not in any way private or personal. Through the Wilson Foundry Co., subsidiary, he said, the company would sell Knight engines to the new company. He continued:

"I have long desired to see a Knight engined car in the lower price field. It has been impossible to even consider adding such a car to the Willys-Overland sales organization which already has the most complete line of any single dealer group in America. Such a step would have been unfair to both the Willys-Overland dealers and the Willys-Overland Co. Hence this opportunity to further the cause of the Knight engine through an entirely distinct manufacturing and sales organization offers an ideal solution."

Letts Plans to Use More British Goods

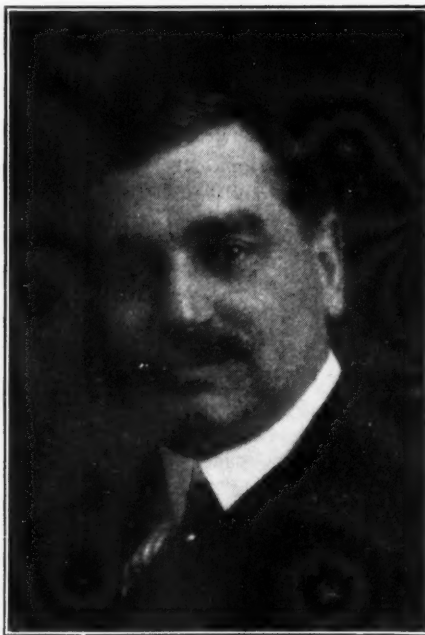
NEW YORK, Nov. 26—While completed Willys-Knight and Overland cars will continue to be shipped to England, an effort is to be made in the Manchester plant of Willys-Overland Crossley, Ltd., to increase production of assembled cars there, said Sir William Letts, K. B. E., managing director of Willys-Overland Crossley, and vice-president of the Society of Motor Manufacturers & Traders, on his return from Toledo, where he conferred with John N. Willys.

There is a demand for the use of more British materials in the production of cars, and arrangements also are being made to obtain more materials from Canada, Sir William said. The Manchester factory will soon get into production on the Willys-Knight truck, he said, augmenting the line of lighter Overland trucks which are now being turned out in increased quantity.

Sir William left here Wednesday for Toronto and from there he will go to Toledo, after which he will return to New York. He will leave for England, Dec. 11.

See Smaller Whippet Near

TOLEDO, Nov. 30—That announcement of a new and smaller automobile especially for the export market is soon to be made by Willys-Overland Co. is indicated by the visit here of Sir William Letts, managing director of Willys-Overland Crossley, Ltd., Manchester, England, who announced that



Sir William Letts
Managing director of Willys-Overland Crossley, Ltd., who is visiting Overland interests here

he came to discuss an increased manufacturing and assembling program at the Manchester plant.

"I believe that Mr. Willys has another surprise for me in the shape of something very interesting for our English and export market," said Sir William. "He has promised that he would always keep ahead in supplying the European market with the right model."

Higher Output Planned on Whippet and Knight

TOLEDO, Nov. 30—Employment and production schedules at the Willys-Overland plant in Toledo have taken an upward turn in the last few weeks and indications are that the "dead center" of fall activity has been passed. John N. Willys, president, announced that for the last 60 days retail sales have been in excess of shipments and that branch stocks are the lowest in years at this season.

Facilities are now nearing completion which will enable increased production of the Whippet model for next year, he said. The success of this model has passed our expectations and 50,000 of them have already been delivered. The demand for Willys-Knight cars continues satisfactory and increased volume in this line in 1927 is planned, Mr. Willys said.

Belgian Duties Increased

WASHINGTON, Dec. 2—Belgian import duties on tires, tubes, automobiles and automobile parts have been increased considerably by means of increased duty coefficients provided in a recent decree of the Belgian government, a cable to the Department of Commerce from the American consul at Brussels states. An extensive list of other products shares in the increases.

ACF Detroit Plant to Build Car Engines

Berkeley Plant to Make Marine Engines—Harvester Deal Nearly Complete

NEW YORK, Dec. 1—American Car & Foundry Motors Co. will concentrate the manufacture of its engines for motor vehicles at the Detroit plant when installation of equipment is complete there. The Berkeley (Cal.) plant will then be devoted to manufacture of marine engines for the line of light cruisers which the company is building.

The automotive engine line will comprise the large Hall-Scott engines and a smaller six-cylinder engine, according to C. S. Sale, president.

Arrangements are virtually complete, Mr. Sale said, by which American Car & Foundry Motors will furnish engines for International Harvester trucks and buses, and some facilities of the Harvester dealer organization will be available for sale of American Car & Foundry products. Details of the agreement are to be completed at a meeting late this week.

There is also possibility, Mr. Sale said, that American Car & Foundry will build some bodies for International Harvester.

Fisher Cleveland Plant Resumes Active Operation

CLEVELAND, Dec. 1.—The Fisher Body Ohio Co. is rapidly working to a full time basis and re-employing about 2600 men previously employed at the plant. The Cleveland factory produces bodies for the Chevrolet and Oakland divisions of General Motors. Officials state that the resumption of activities here is in line with a policy now general through the various units of the General Motors Corp. throughout the country.

Operations have been slack at the Cleveland plant for more than a month. Bodies for new models are now being turned out and it is expected that large scale operations will continue for some time.

Italy Plans Toll Roads

WASHINGTON, Dec. 1—Several new projects for the construction of autostrades, or motor toll roads, are receiving attention in Italy, a cable from Consul H. R. Brown, at Milan, to the Department of Commerce states. Under the system the autostrades so far have been constructed for the special use of motor vehicles, they become the property of the government, without payment therefor, at the end of the concession period, 50 years. Tolls, therefore, are sufficiently high to provide amortization within that time, in addition to interest and profit.

Colors Seen Creating Sheet Steel Problem

Rollers Fear Extra Requirements of Buyers — Profit Shrinkage Halts Prices

NEW YORK, Dec. 2.—Steel producers, catering to the automotive industries, are impressed by three recent developments. They find reassurance in advance reports regarding new models which indicate that there will be virtually no change in the average quantity of steel required per unit; also that there is little likelihood of any marked change in the extent to which the various descriptions of finished steel will share in total consumption in 1927.

The second development that has challenged their attention is the still greater importance which colors are likely to assume in 1927 body models. Full-finished automobile sheet manufacturers anticipate that the emphasis that is being laid on fancy finishes will make for even greater fastidiousness on the part of body builders than has been the case this year. Technical ingenuity has so far failed to develop a finishing procedure that would eliminate all but prime sheets. The problem of how to meet the exacting demands of consumers on a mass production basis is a vexing one.

Third, reports of steadily dwindling per unit profits of leading motor car manufacturers give the steel industry much food for thought. It is now recognized that the old argument of: "What does a dollar or two more for steel matter in a thousand dollar car?" doesn't sound very convincing in the light of these statistics which make for a better understanding of the reasons underlying resistance to price advances on the part of leading automotive consumers.

First Quarter Prices Firm

Cold-finished steel bar and bolt and nut manufacturers have opened their books for first quarter 1927 business at unchanged prices. Here and there reports of price-shading in sheets are heard, but, if these reports are true, the market as a whole has not been affected by them. There is no disposition on the part of producers at this time to expedite transactions at the sacrifice of price and, for that matter, consumers are determined to hold their purchases down to actual needs.

Pig Iron—The market is decidedly dull. Some melters claim to have foundry iron due them on \$18 valley contracts, but the majority of automotive foundries are buying in single car lots.

Aluminum—Importers appear to be maintaining their quotations for 1927 shipments on the basis of prevailing prices and the domestic producer is booking business at unchanged levels. The latter really appears now in the dual role of aluminum producer and parts maker and is selling a steadily increasing amount of its product in the form of finished castings. In the

London market intensive competition between the home producers and the Continental shippers continues but this is absolutely without effect on the market here.

Copper—Automotive brasses are now selling at the lowest price since the summer of 1925, leading producers having lowered their quotations in conformity with the weakness of the copper market and the easy conditions that prevail in that for zinc.

Tin—The British are answering attempts to drive the price of copper higher to them through the American export combine with the highest prices for tin since the war. Spot tin is decidedly scarce.

Lead—Storage battery makers have been liberal buyers of lead in the last half of November. The market remains steady.

Spring Buying Cuts Factory Tire Stocks

AKRON, Nov. 30.—Shipments of automobile tires from Akron factories to branches and retail dealers have increased 10 to 15 per cent during the past 10 days, and factory inventories are being steadily depleted. Response of dealers to the solicitation for spring dating orders has been excellent, according to factory sales managers. The lower schedule of tire prices has served to stimulate retail business.

Tire factories are operating at 80 to 85 per cent of capacity and probably will not increase production to any great extent until 1927 opens, preferring to clean up surplus stocks so that annual reports will show a favorable inventory position.

Lower prices probably will play a large part in tire consumption next year. During 1925, with five consecutive price increases, there was some over-buying, and 1926 tire sales suffered accordingly. With the crude rubber market falling this year, followed by three tire price decreases, tires now are more than 55 per cent below 1920 prices and about 40 per cent below the peak of 1926.

Chrysler Adds Models in 50, 60 and 80 Lines

DETROIT, Nov. 29.—Chrysler Corp. had added roadster models with rumble seats to the 50 and 60 lines. In the 50 line the new model has the regular roadster body with the rumble seat built in at an additional cost of \$45. On the 60 chassis the new body is in addition to the regular roadster body and lists at \$1175. The models are upholstered in Spanish leather, and the 60 carries automatic windshield wiper, windshield wings and front and rear bumpers.

Two models are added also to the 80 line, a cabriolet at \$3495 and a five passenger town car at \$5495. The cabriolet has a rumble seat and a folding top.

Expand Flint Duco Plant

FLINT, Dec. 1.—The E. I. du Pont de Nemours Co. is soon to break ground for a large addition to its Flint factory which is given over to the manufacture of Duco. The new unit with equipment will cost about \$425,000.

Rubber Certificates Now Valid 6 Months

Increase in 1927 Supply Seen as Result of New Policy — Stocks Increase

NEW YORK, Nov. 29.—The British Colonial Office has announced that coupons covering crude rubber allowances from Ceylon will be valid for six months from the date of the issuance, instead of four months as previously indicated, according to the weekly market letter of Henderson, Helm & Co., Inc.

This means that coupons issued on and after Feb. 1 in Ceylon will be valid, in conformity to those issued in Malaya, both of which are now on the same basis. "It means actually just so much more rubber that Ceylon will be able to ship in the future," the statement explains.

The recent drop on the London market is attributed to the bearish influence of this announcement.

The First National Bank of Boston sums up the present situation in rubber as follows:

"Following a sharp decline, which began in November, 1925, and continued without interruption until August, this year, crude rubber prices recovered about 5 cents a pound in the course of two months. Recently, however, the rubber market has again been under pressure and the average weekly quotations for the period ending Nov. 18 were 7 per cent below those of the latter part of September. The recent weakness in the rubber market has been brought about by a decline in demand and increase in supply. Owing to decline of consumption it is believed the present supply will be ample to meet requirements for several months."

Variety of Causes Hits Southern Sales, Says Lord

NEW YORK, Nov. 27.—The automobile business is slower than usual for this time of year in the Southeast, as might be expected in view of the storms and general agricultural situation, according to G. Frank Lord, general sales manager of the Star car division of Durant Motors, Inc., who has just returned from a visit to Jacksonville, Fla., and Georgia points.

In Mr. Lord's opinion, the significance of the bumper cotton crop is exaggerated. The most difficult situation, and the one most directly affecting the automobile business, is the shortage of cash due partly to the number of bank failures and to the increased capital required for financing the bumper cotton crop.

Star dealers in Georgia and Florida are in an advantageous position with low stocks, Mr. Lord said. A number of new dealers are prepared to take on the line as soon as the money situation eases somewhat, he said.

Men of the Industry and What They Are Doing

United Motors Service Observes Anniversary

United Motors Service celebrated its tenth anniversary this week in conjunction with its annual convention. Starting with a small office in Detroit on Dec. 1, 1916, as the service organization of Dayton Engineering Laboratories Co., Remy Electric Co. and the Klaxon Co., United Motors Service is now maintaining 3000 points of sales and service contact for Delco-Remy, Klaxon, Jaxon Steel Products, Harrison Radiator, Hyatt Roller Bearing, New Departure and AC Spark Plug.

Officers of the company who addressed the convention were R. S. Lane, general manager; J. L. Elwood, assistant to the general manager; F. A. Oberheu, sales manager; D. M. Sweeney, field supervisor; F. H. McSorley, credit manager; W. M. Cunningham, controller; R. C. Campbell, general purchasing agent, and T. S. P. Griffin, advertising manager.

Barton Joins Peerless

Ned W. Barton, veteran of the automobile business and formerly an executive of the Olds Motor Works, has joined the sales force at the Peerless factory. He went with Olds in 1910 and in 1916 was made branch manager at Chicago. In 1923 he opened his own salesrooms in Paterson, N. J. In January, 1926, he went back to Olds at the New York branch and later went to Buffalo with Olds, resigning recently to join Peerless.

Valentine Promotes Hill

Clayton Hill, who has been connected with the Detroit office of Valentine & Co., has been advanced to the position of assistant to the vice-president in charge of automotive sales and will make his headquarters henceforth in the New York office. He will be succeeded in Detroit by John J. Riley who has been with the company there for the last year.

Champion Finds Sales Good

Albert Champion, president of the AC Spark Plug Co. has returned from a trip to Europe in the interests of the AC factories in England and France. Both companies have made excellent progress, Mr. Champion said, now supplying a major part of the original equipment demand in those countries. Other AC products are finding an increasing market, he declared.

Crawford Vice-President

H. H. Crawford, of the Crawford-Lewis Co., distributor for Pines Winterfront, has been elected vice-president and sales manager of the Pines Winterfront Co. He will continue to maintain his headquarters in the Stephenson Building, Detroit.

CONTINENTAL NAMES NEW DIVISION HEAD

Continental Motors Corp. has consolidated the sales activities of its industrial division by transferring its personnel to the Muskegon factory, now its new headquarters. The change was effected to facilitate efficient control over both the manufacture and sales schedules of industrial power units as well as to better serve its increasing number of customers. The corporation has appointed L. J. Kanitz as industrial division manager.

Buda Names Officials

John P. Mahoney has been appointed executive engineer by the Buda Co., and will have charge of all engineering for the automotive, power plant and industrial divisions. Mr. Mahoney formerly directed sales of these divisions. He will also have charge of service activities with Walter Petty, formerly chief engineer of Service Motor Truck Co. and Maccar Truck Co., manager of the service department. G. B. Wright is sales manager of the automotive division and R. K. Mangan sales manager of the industrial and power plant divisions.

Moskovics Dines Cup Winner

F. E. Moskovics, president of Stutz Motor Car Co. of America, Inc., gave an informal party at the Indianapolis Athletic Club in honor of Glen Shultz, who won the Pike's Peak hill climb in a Stutz during September. Besides representatives of the Stutz company there were present Earl Cooper, Bob McDonough, Gil Anderson and Tom Rooney, drivers and former racing stars.

Runyon District Manager

Mefford R. Runyon has been appointed New York district sales manager for the Bridgeport Brass Co. Before joining Bridgeport, Mr. Runyon had participated in the reorganization of the Benson Rolling Mills, recently selling out his interest.

Du Pont Officials Sail

F. W. Picard, vice-president of E. I. du Pont de Nemours & Co., and chairman of the board of the du Pont Viscloid Co., and F. B. Davis, Jr., president of the Viscloid Co., accompanied by their wives, sailed Wednesday on the steamship Berengaria for Europe.

Caron to Form Agency

John Caron has resigned as advertising manager of the Wills Ste. Claire Co. and is forming an advertising agency at Port Huron, Mich.

World Congress to Draw More British Delegates

Great Britain's automotive industry will be represented at the Third World Motor Transport Congress in New York, Jan. 10 and 11 by a larger delegation than ever before, according to advices received by the National Automobile Chamber of Commerce. The Society of Motor Manufacturers and Traders will be represented officially by Col. J. Sealy Clarke, member of its council and management committee.

Hon. Graham Ford, chairman of the Tramways and Omnibus Committee of Leeds, will attend officially to study traffic and control methods.

British automobile dealers will be represented through their association by H. A. Bennett, J. Chilton, W. T. Grose and other prominent figures.

Shelton in Northwest

O. T. Shelton, direct factory representative for the Auburn Automobile Co. in the Northwest, will hereafter make his headquarters in Portland with the Lawson Auto Co., distributor. Mr. Shelton's presence in this field is an addition to Auburn service, as there had previously been no permanent representation from the factory in this territory. He will cover the seven western states of Oregon, Washington, Montana, Utah, Idaho, Nevada and Wyoming.

Pontius in Cleveland

George W. Pontius, Jr., formerly connected with the Rickenbacker Motor Co., at Detroit, has been appointed manager of the Rickenbacker Cleveland branch.

M. E. Dalton

CHICAGO, Nov. 27.—M. E. Dalton, of Dalton & Balch, Inc., was shot and killed by a robber whom Mr. Dalton resisted in the company's place of business one evening this week. Mr. Dalton and William Arnold, a salesman, were the only ones in the store when two robbers entered. Mr. Arnold was struck on the head with a pistol but not seriously hurt. Dalton & Balch are well known in the trade and members of the National Standard Parts Association.

A. W. Crawford

MILWAUKEE, Nov. 26.—A. W. Crawford, for four years service and sales promotion manager for Chevrolet Motor Co., with headquarters at the branch factory in Janesville, Wis., died Nov. 19 at the Mayo Clinic in Rochester, Minn. Mr. Crawford was associated with General Motors and its forerunner concerns for many years. C. J. Peters has been appointed to fill the vacancy.

E. T. Strong Named President of Buick



Edward T. Strong

New president of Buick Motor Co., succeeding the late H. H. Bassett

Franklin Sales Head Becomes Distributor

SYRACUSE, Nov. 30—The Ackerman Automobile Co., Inc., has been organized here by S. E. Ackerman, sales manager of the H. H. Franklin Mfg. Co., to handle the wholesale and retail sales of Franklin cars in Syracuse and central and northern New York. It will take over the Syracuse and Onondaga county sales organization of the E. M. O'Donnell Co., Inc., present distributor of Franklin cars in this section. The new corporation will have a capitalization of \$150,000.

Reorganization of the district sales system, control of central and northern New York distribution, and expansion of the Syracuse distributor's territory to include the entire area are coincident with Mr. Ackerman's change to the field selling end of the Franklin sales department.

Mr. Ackerman is probably the oldest sales manager in the automobile industry in point of years of continuous service. He joined the Franklin company in 1909, coming here from the New York Air Brake Co. in Watertown. He has been sales manager of the Franklin company since 1916.

Stearns to Hold Salon

CLEVELAND, Dec. 1.—The Stearns factory announces that a national salon showing of Stearns-Knight cars will be held by dealers throughout the country Dec. 5 to 11.

General Sales Manager is Selected to Fill the Post Made Vacant by Death of H. H. Bassett— Cady B. Durham Vice-President

DETROIT, Nov. 30—Edward T. Strong, general sales manager, has been elected president of Buick Motor Co., succeeding the late H. H. Bassett, according to an announcement by A. P. Sloan, Jr., president of General Motors Corp. Cady B. Durham, assistant general manager, has been elected vice-president.

Both executives have been connected with Buick over a period of years, their terms of service beginning at about the same time, Mr. Strong in the sales department in which he rose to general sales manager in 1917, and Mr. Durham in the production department of which he became assistant general manager in 1920.

Mr. Strong came into the industry by way of the farm implement route. A ride to a fire in the little white Buick model 10 fired him with the possibilities of promoting the general sale of automobiles. Whereupon he applied to R. H. Collins, then general sales manager of Buick, for a job and he got it and he was in the industry.

The Buick branch at Buffalo wasn't paying and Mr. Strong was sent there. He stayed two years, put the branch on its feet and then was sent to the rescue of the Buick branch at Indianapolis, where he was equally successful. In 1915 he was transferred to Chicago where he had charge of the branch there and also at Milwaukee, until 1917, when at the age of 40 he was made general sales manager of Buick Motor Co.

Mr. Strong was born in Imlay City, a small town in Lapeer county, in 1877. His father was the proprietor of a combination blacksmith, wagon repairing and implement selling establishment and the boy learned the mechanics of farm machinery.

Through W. F. Cowham, state agent for the McCormick Harvesting Machine Co., he obtained his first job and spent his first summer setting up mowers and binders. Next he was sent to the Red River Valley to set up machines. During his experience as a mechanic he sought a sales position and in 1899 the company assigned him to sell in Lapeer county.

Became Stationary Engineer

In 1901 Mr. Strong left the McCormick company to take a course in practical engineering at Cleveland. He became a stationary engineer but in 1903 he joined the International Harvester Co., then in process of organization. He took a job as salesman out of Detroit and later the company put him in charge of gasoline implement sales in his territory. From this position he resigned to join Buick.

His friends know E. T. Strong as a quiet, unassuming person with an unusually likeable disposition. He is a close student of selling methods and has the knack of directing a huge organization. That he will be as successful

in general administration as in sales administration is regarded as assured.

Selling automobiles does not command his entire attention. Away from the office he likes outdoor life. He has a summer home at Long Lake, 12 miles from Flint. He also owns a lodge in the virgin forests on Cascade river, near Grand Rapids. He is an ardent horseman, and for several years his stable was the pride of Flint. Mr. Strong also finds much diversion aboard his yacht on the Great Lakes.

Mr. and Mrs. Strong make their home in Flint. Their son, Bruce Strong, is following in his father's footsteps in the automotive sales field. After leaving the University of Chicago he became assistant manager of the Buick Motor Co.'s branch at Flint. Making a success of his work, he obtained the Buick franchise for Oak Park, Ill., and is becoming well known in Greater Chicago's fraternity of automobile dealers.

Durham Born in Seneca, N. Y.

Cady B. Durham was born in Seneca, N. Y., Dec. 31, 1872. His first position was with the Sibley Fire Engine Co. when he was 13 years old. He shifted about in his early years working for the B. W. Payne Engine Co., Ball & Woods Works, Pond Tool Works, Cameron Steam Pump Co., Gould Pump Works, McIntosh & Seamer and Straight Line Engine Works. In 1903 he went with Ingersoll & Rand Co. and in 1909 joined Buick as assistant superintendent of Plant 1.

In 1912 he was promoted to superintendent and during the war was in charge of Buick's Liberty engine plant. In 1919 he was promoted to master mechanic of Buick factories and in 1920 was named assistant general manager.

Chevrolet Adds Toledo Unit

TOLEDO, Nov. 30—The Chevrolet Motor Ohio Co. is completing the equipment of its new plant addition here which will give a total of ten acres of floor space and a maximum capacity of 5000 transmission units a day.

Marmon Sells Out Flour Mill Interest

Need for Increased Car Production Space Prompts Sale to Allis-Chalmers

INDIANAPOLIS, Nov. 30—The flour mill interests of Nordyke & Marmon Co. have been sold to the Allis-Chalmers Mfg. Co. and the plant space formerly devoted to this activity will be transformed into automobile production space. By the sale of this property the Marmon interests are consolidated behind the manufacture of its Marmon automobiles, with all plant space to be given over to the present 75 line and the new Little Marmon soon to be introduced.

The Allis-Chalmers company will consolidate the Marmon flour mill business at its plant in West Allis, Wis., the work of moving the plant equipment to be started immediately.

The automobile and flour mill parts of the original Marmon business were separated about a year ago when the Marmon Motor Car Co. was formed to take over entire control of the automobile division. The flour mill business continued under the Nordyke & Marmon name until the sale. The original flour mill company was formed in 1851 at Richmond, Ind., moved to Indianapolis in 1871, and was the sole activity until motor car production began in 1902.

Overtures for the purchase of the flour mill business had been made previously but the sale was declined until the need for additional space for automobile manufacturing could no longer be met in any other satisfactory way. The terms of purchase were not made public.

Form Heat Treat Company

TOLEDO, Nov. 30—The Industrial Heat Treating Co., capitalized for \$50,000, has been formed here by a group of men identified formerly with the Bock Bearing Co., to engage in the

general treatment and processing of metals, formerly conducted in the Bock plant under processes of William S. Nunemaker.

Ben L. Albright, C. G. Steinbicker and Attorney Harold J. Kehoe are the other incorporators in the new company.

Young Sees Eights Doubling 1925 Sales

DETROIT, Nov. 29—The increasing popularity of the eight-cylinder automobile in the \$1500 and up class is indicated in figures issued by Dubois Young, president of Hupp Motor Car Corp. In 1925 the buying of straight-eights increased five-fold and 1926 will see last year's figure doubled, according to Mr. Young.

It is expected that eight-cylinder sales for 1926 will exceed \$300,000,000 in a total motor car market of \$3,200,000,000, compared with approximately \$150,000,000 in a market of about \$3,000,000,000 in 1925. This figure tends to show that most of the increase in motor car buying for the year has been enjoyed by the eight. More than half of this increase, or some \$80,000,000 has been by the straight-eight.

"Motor cars are, without question, rapidly moving into three groups, governed both by price and social distinction," said Mr. Young. "The four is supreme up to \$900, the six from that point to \$1500 and the eight is rapidly moving toward dominance of everything above the \$1500 level. Within two years it will have achieved that dominance."

Willard Adds New Unit

CLEVELAND, Dec. 1.—Work on the second new unit for the year at the plant of the Willard Storage Battery Co. is being rushed and the building is nearly complete. This structure will provide 115,000 sq. ft. additional for production. It is four stories high, of brick and reinforced concrete. The first addition of the year was completed in June.

G. E. Price Control Upheld by Decision

Supreme Court Rules Distributors and Dealers May be Designated Agents

WASHINGTON, Nov. 26—Possible automotive applications are seen in the U. S. Supreme Court decision this week that the Sherman anti-trust law was not violated by the General Electric Co. in retaining ownership of its lamps until sold to the consuming public; constituting distributors and retailers as agents on a commission basis and fixing the retail price.

The company in 1911 substituted this plan for its original one, under which the retail price was fixed on lamps sold to distributors and dealers. The government in the present suit insisted that, should the General Electric be granted immunity under the Sherman law, many manufacturers would attempt to evade that law by designating their distributors as agents.

On another point in the case the government contended that an agreement between General Electric and Westinghouse Electric & Mfg. Co., by which the latter was licensed to sell lamps at fixed prices patented by General Electric, was a violation of the law. The decision here was also in favor of General Electric, the court holding that patent rights sustained the legality of the licensing agreement.

Bock Plant to be Sold

TOLEDO, Nov. 30—The old plant of the Bock Bearing Co. here, purchased a few months ago by the Timken Roller Bearing Co. of Canton, has been offered for sale, it is understood.

Auto-Lite Buys Office Site

TOLEDO, Nov. 30—The Electric Auto-Lite Co. has purchased a site for a new office and administration building across the street from its plant.

Developments of the Week in Leading Motor Stocks

NEW YORK, Nov. 30—After a protracted period of desultory trading, in which declines outnumbered advances and interest seemed dead, stocks of most of the leading motor car and truck manufacturers last week gave some signs of renewed interest. The volume of transactions was not notably high, nor were the price changes of spectacular extent, but for the first time in a long while there really seemed to be a definite trend—and that was upward.

Just why the market should take such a turn at this time was not made clear. Most trade reports showed a rather low level of operations in the industry and, although it was said in one or two

instances that sales had stiffened slightly, it was generally agreed that retail demand was under that of a year ago and that dealer stocks were larger.

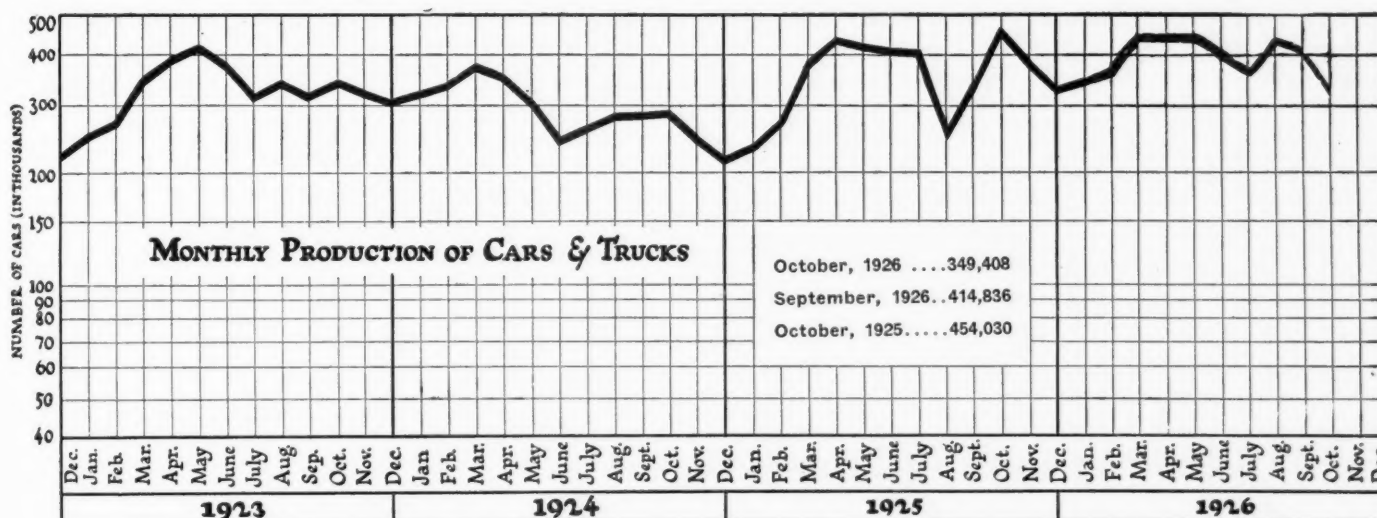
On the other hand there was a feeling that the pessimism of recent weeks had been overdone and brought several shares into the bargain class. When this sentiment was translated into buying orders a sleeping short interest was prodded into activity and helped the rebound.

Some of the conspicuous gains were in General Motors, Hudson and Studebaker, all of which closed the week nearly three points higher. Gardner went to 7, a net gain of 1½, after

touching a low for the year at 5½. This company's recent aggressive merchandising plans have attracted favorable notice. Fractional changes occurred in other motor car stocks with the exceptions of Moon and Peerless, which closed at losses of 1% and 2% respectively on the week. Another run-in of the shorts brought a net gain of 4% for Mack Trucks.

In the accessory and equipment group, gains and losses about balanced each other. Although, among tire stocks, Goodrich and Goodyear were weak, Miller had a gain of nearly 3 points and some of the others were fractionally higher.

October Production Falls 16 Per Cent



Tax Payments Gain Over October, 1925

WASHINGTON, Nov. 27.—Despite the elimination of excise taxes on automobile trucks and wagons and on tires, parts and accessories, under the 1926 revenue act, the revenue levies on automobile products in October, 1926, in all classifications, were \$379,478 greater than in October, 1925.

Taxes paid on automobiles and motorcycles last month, according to the monthly statement of internal revenue receipts just issued by the Treasury Department, amounted to \$7,698,921, an increase in this classification over the same month last year, of \$2,609,615. In October last year, the automotive industry paid \$1,650,109 taxes on tires, parts and accessories and \$580,027 on automobile trucks and wagons. These items were entirely eliminated by the revenue act of 1926, but the increase in the other classification left the net increase noted above.

The October figures brought revenue receipts on automobiles and motorcycles up to \$26,931,805 for the four months ended Oct. 31, a decrease in this classification of \$12,488,766 under the same period last year. There is to be added to the decrease in taxes on the industry's products \$8,621,967 paid on tires, parts and accessories last year and \$3,260,692 on automobile trucks and wagons, both of which items were entirely eliminated this year.

Jordan Sport Coupe \$2195

CLEVELAND, Nov. 27.—Jordan Motor Car Co. has started production on a two-passenger sport coupe mounted on the regular J-I Jordan chassis, priced at \$2195. The car has a rumble seat and there is a compartment for golf bags or luggage in the rear deck. Access is through a flush fitting door on the right of the body. Another package compartment is behind the seat.

The car is painted in two duo-tone

color combinations, Bosky green and lush green or Cameron heath and Argyle gray. Upholstery is broadcloth. Leather upholstery will be furnished for \$50 extra.

Paige-Detroit Earnings Hit by High Body Prices

DETROIT, Nov. 27.—Earnings of Paige-Detroit Motor Car Co., for the first nine months of the year total \$755,452 after a heavy charge-off. A statement issued this week declared that the company broke all previous sales records for the first six months of the year. H. M. Jewett, president, said "profits were seriously affected by the fact that our principal source substantially increased the price of bodies during that period and was unable to furnish a sufficient number in the first quarter."

Paige and Jewett sales in October were 64 per cent larger than in October, 1925, said Mr. Jewett, adding that he expected 1927 to be the best year in the company's history.

The consolidated balance sheet as of Sept. 30 shows current assets, including \$1,443,124 in cash and \$437,978 in negotiable securities, totalling \$8,804,119. Current liabilities were \$3,854,659, of which \$2,304,100 comprised trade accounts payable. Inventories, including finished cars, used cars, material and work in process, less reserve for shrinkage, were valued at \$5,160,109. Plant and equipment, less reserve for depreciation, were valued at \$5,710,362.

Funded debt consisted of \$500,000 of the original \$3,000,000 of 6½ per cent gold debentures, issued in 1924 and maturing in June, 1927. Operating reserve for contingencies was \$287,654.71.

Dill Opens Akron Office

AKRON, Dec. 1.—Dill Mfg. Co., maker of tire valves and valve parts, has opened an office here at 812 United Building with Wright Bronson in charge.

U.S. Engine Stocks Drop to 2293 Total

WASHINGTON, Nov. 29.—The Army Air Service has at the present time a surplus of 2293 airplane engines, valued at \$8,564,155, in addition to surplus parts valued at \$1,423,931, according to the annual report of Major General Patrick, chief of the Army Air Service. The bulk of the engines are Liberty engines.

During the past fiscal year the report shows that 1006 engines valued at \$4,800,000 new, were sold by the government for \$600,871, or approximately 12½ per cent of their original cost. Discussing developments in aviation during the past year, General Patrick says: "There was little indication of any marked change in airplane structural designs, except for large heavy bombers, the design for two types of which are being prepared for the consideration of the air corps. Three three-engine monoplane transports are being purchased. These items cover the only deviation from an almost universal use of the single bay externally-braced biplane type of construction. The use of metal propellers is becoming more general due to increased efficiency."

The government's stock of planes has dwindled from 7000 planes of all types on hand in 1922, to 1451 at the present time, the report shows. During the last fiscal year \$4,001,290 was spent for 285 new or remodeled planes, only 106 of which had been delivered to June 30.

Grand Prix at Montlhery

PARIS, Nov. 20 (by mail)—Montlhery track and roadway, a few miles to the south of Paris, has been selected for the 1927 French Grand Prix, which will be staged July 3. The race is open to cars of 91½ cu. in. piston displacement with bodies 31 in. wide, and no restriction as to the number and position of the seats. Distance will be about 400 miles, and cash prizes will total 150,000 francs.

November Reports Show Sales Decrease

(Continued from page 944)

Sales conditions in leading centers are reported as unsatisfactory generally in November. There has been much unfavorable weather leading to reductions in sales, many cities showing totals below those for November last year, and practically all being considerably under October. As result new and used car stocks have increased. Trucks have been in better demand.

The reports follow:

NEW YORK

New car sales in the metropolitan area for November are likely to show a material decrease as compared with October this year and with November, 1925. Total sales are unlikely to exceed 6500 as compared with 8490 last month. The used car situation is probably worse than last month. Truck and commercial car business is holding up well.

CHICAGO

Automobile retailing in Chicago during November was seasonally slow, being especially retarded by the first real visitation here of winter weather. Blizzards which gripped this district caused a pick-up in sales of bad weather accessories, but put a crimp in motor vehicle sales. Used car sales have held up well but winter is beginning to build accumulations. Trucks found no better market in November than in October.

DETROIT

New car sales in Michigan appear to be slower than a year ago. Several factors have contributed to lessen demand for new cars. Automobile production has been lower with consequent unemployment and weather has been unfavorable. Rains have also caused heavy losses to many farmers, especially bean raisers. Trucks have found a more ready sale than a year ago. The used car market throughout the State remains unchanged.

PITTSBURGH

The decline in automobile sales in November from the previous month in the Pittsburgh and western Pennsylvania district was about 25 to 30 per cent, sales in the district equalling November, last year. Best results were evident in the middle-class field, with light cars showing the greatest falling off. The used car situation is satisfactory. Scrapping of used cars was heavy during the month, and will also be next month. Accessory business has been rather poor.

SEATTLE

November was the slowest month of the year in the State of Washington. One reason was the expiring license, with people reluctant to take delivery of a car and only get a month's use of a license paid for on a six months' basis. It is noticed that people are spending more money for automobiles. The used car market is active if cars are not overpriced. Credit situation good and repossessions small. Truck sales have been slightly above normal.

SAN FRANCISCO

Sales in northern and central California for November showed about 20 per cent improvement over November, last year, and 15 per cent over October, this year. Torrential rains last week held sales to minimum and reduced the average for the month, but value of the state-wide rains in crops next year will more than offset

sales resistance and reduction now. Rebuilt used cars showed marked improvement in sales. Truck sales were better than any month of the year by nearly 30 per cent, largely due to \$1,000,000 payment for apricot crop.

DES MOINES

Though new car sales in Iowa were larger in November than in November last year, the total will be below the October registrations. Five makes of cars represent about 80 per cent of car sales in Iowa and of these five only one shows any appreciable gain during November. Jobbers of automotive supplies are reporting better business.

SALT LAKE CITY

New car and truck registrations in Utah for November were well under October figures. Dealers in the two largest cities of the State report used car stocks low but on the whole the used car situation is bad and getting worse. The industrial situation is good save for certain localities heavily interested in the sugar beet industry which was a partial failure this year.

LOUISVILLE

Passenger car sales during November in Louisville will show a slight drop below October and a decrease from the November figures of last year of approximately 10 per cent. This condition is due largely to the decreased sales of one make of light car. The combined sales of all other makes show an increase over November, 1925. Used car stocks are normal with dealers closely scrutinizing deals. The usual seasonal slump in general business has increased repossessions. Truck business is fair.

SPRINGFIELD

Passenger car sales in the Springfield district in November were generally light. Several concerns were enabled to make good showings, however, by energetic campaigns. As a rule, sales have been off in every price class. Most dealers in this district are overstocked with used cars. Truck sales for November ran a little behind the October figures. Parts and accessory business is about normal.

BUFFALO

Dealers in the Buffalo territory report November business somewhat less than October. Business that is being done is chiefly by those dealerships with extremely aggressive sales policies. Demand for commercial vehicles shows a relatively better trend than for passenger cars. Distributors of accessories report good business. Tire sales are slow.

BOSTON

The decline in sales continued its downward curve through November. Out in the territory the story was "little doing." In northern New England snow hit in and this always is a factor in slowing up sales. Used cars were moving along fairly well. A number of the dealers put a dead line on used cars beyond which they refused to accept any more. Truck sales for the month have been fairly good. Between now and Jan. 1 it is not expected that the sales will show any great signs of life.

ATLANTA

Considering the lowness of cotton prices automobile sales in cities in the southeastern territory are fairly brisk, but sales in the smaller and rural communities are off and have been for the past four to six weeks. Low priced car sales are good but

establishing nothing in the way of a record. Higher priced cars are in little demand. Dealers and distributors alike, however, seem confident of the outlook for the early part of 1927. Motor truck sales are also showing a decline, partly seasonal and partly due to low cotton prices.

MILWAUKEE

November sales totals demonstrated more forcibly than ever before that unseasonable weather conditions exert an adverse effect on passenger car business. Beginning with a blizzard early in the month, there has been snow on at least 20 out of 30 days. Given more normal weather conditions in December, the trade is confident that it will make up for the deficiencies of October and November. On the face of figures, the Milwaukee and Wisconsin passenger car trade is better off than a year ago, with the exception of the Ford dealers.

COLUMBUS

Business among passenger car dealers in November was not as good as in November, 1925. Weather conditions were not good and this is given as the principal cause. Other causes are the general slow up in industrial lines. Many prospective purchasers are waiting for the shows before making purchases of new cars. While unemployment is no larger than last year, there is a general feeling of hesitancy. The farmer trade is showing more signs of activity. Used car business is not good and is behind that of November of last year. Accessory business is somewhat spotty but is better than last year. Truck sales have been holding up rather good.

DENVER

An appreciable drop in automobile sales, both new and used, made its appearance late in October and continued until mid-November. At that time conditions improved. November will be about 20 per cent under the same period last year. Farm conditions are almost ideal, and the sugar companies are distributing the largest beet payments in the history of the State. Trucks in general reflect the same situation.

CLEVELAND

November was the poorest sales month for automobile distributors since 1923. New car and truck sales were decidedly low and used cars scarcely moved at all. General business conditions in Cleveland were not as good as expected. The only optimism in November was derived from the fact that there were a number of orders placed for spring delivery and quite a few used cars turned in to be sold for motorists who will select new models after the first of the year. Weather was decidedly unfavorable.

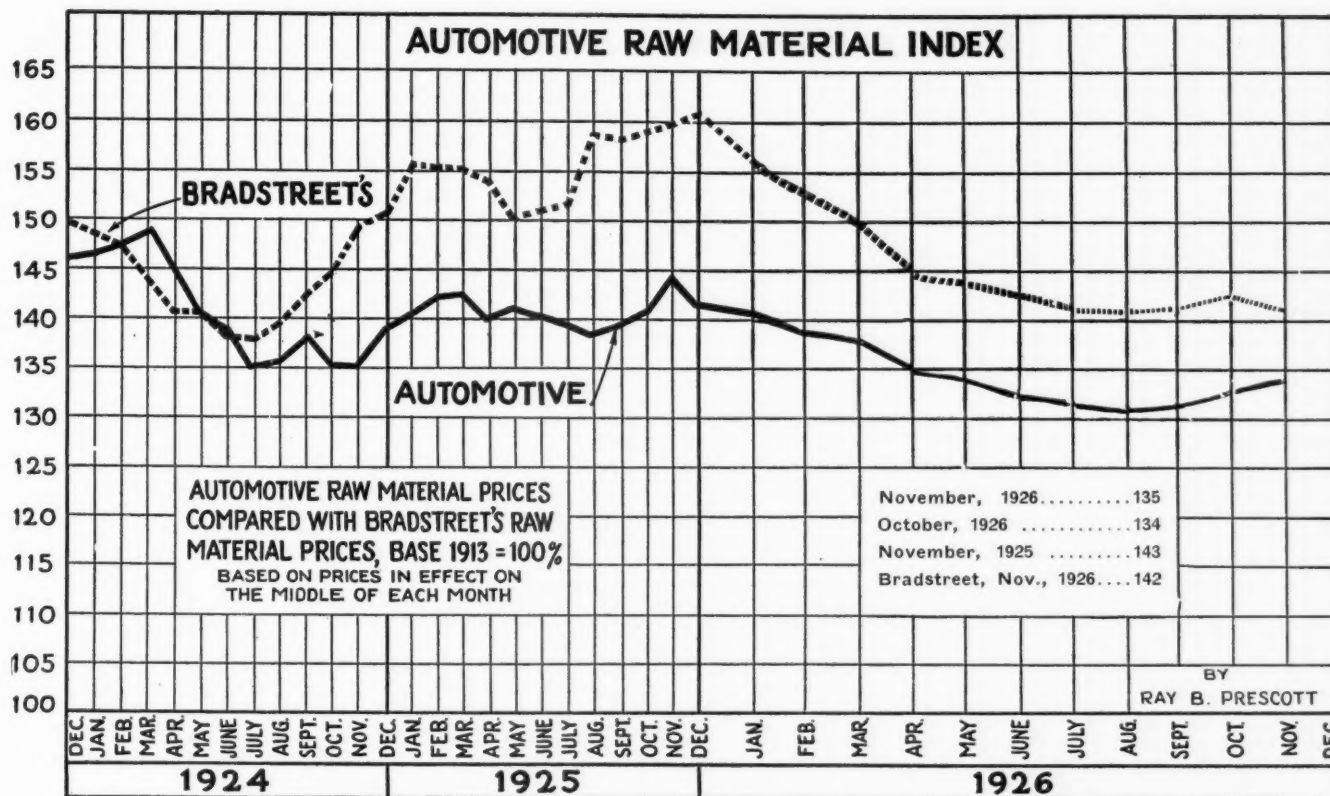
LOS ANGELES

Southern California November new car sales were approximately 10 per cent ahead of November last year. Situation generally favorable with excellent outlook for good automotive Christmas. Usual seasonal decrease over October not as pronounced as last year. Used car stocks within reasonable bounds. Truck sales increasing with market strengthening after several dull months. General business conditions good.

DALLAS

Effects of low cotton prices somewhat abated in Texas and parts of Oklahoma, Louisiana, Arkansas, New Mexico and Arizona as December opened and prac-

Raw Material Prices Register Increase



November Reports Show Lower Sales

(Continued from preceding page)

tically all automotive lines were showing some improvement. Business for the year in most lines will exceed that of 1925. November showed higher new car sales than October and better business in equipment, parts and accessories. Used cars and other lines paralleled October.

BIRMINGHAM

Business is reported somewhat off during November. The used car market is particularly quiet and dealers are wary of sales involving trade-ins. The demand for new cars has been better than November of last year. The number of reposessions on new cars is low but reposessions of used cars is fairly high. Truck dealers report business about equal to November last year.

MINNEAPOLIS

Crop conditions and snow and cold weather have cut sales of automobiles and accessories in the Ninth Federal Reserve District. However, a slight increase for the end of November over earlier in the month is noted. There seems to be a fair demand for high priced cars. An excess of used cars makes trade-in deals more undesirable and has slowed the market. Farmers are buying better as the season progresses.

ST. LOUIS

Automobile sales showed no improvement during November over those of the preceding month and were about 10 to 12 per cent behind November, 1925. Adverse weather was the principal obstacle to sales of both new and used car stocks. New cars are piling up to some extent and

used car stocks also are higher. It is expected sales will be better during December.

PHILADELPHIA

New car sales in November, which total approximately 2700, took the measure of November, last year, and October of this year, when sales were respectively 2668 and 2622. New car stocks grew in November with the customary storing of cars by agencies. The used car market is regarded as satisfactory. Sales and stocks are normal for this season.

Seiberling Plans Output of 6000 Daily in 1927

AKRON, Dec. 1—Completion of a factory addition will increase the capacity of the Seiberling Rubber Co. to about 6000 daily by May 1, F. A. Seiberling, president, has announced. The new building will cost \$700,000. Sales for 1926 will surpass the goal of \$12,000,000 according to officials. Immediate need of further manufacturing facilities was created this year, when the normal capacity of the plant was exceeded.

New Jersey Sales Decline

NEW YORK, Nov. 29—Total new car registrations in the 21 counties of New Jersey during the month of October were 7599, as compared with 8960 for September and with 7881 for October, 1925, according to figures supplied by Sherlock & Arnold. Commercial car sales in all 21 counties for October this year totaled 1589 as compared with 1483 for October last year.

Automotive Exports 4% of 1926 Gross

WASHINGTON, Nov. 30—The ratio of the automotive export business in the United States, compared with the export business of the 18 leading commercial nations of the world, during the first eight months of this year, indicates that U. S. automotive exports were approximately 0.89 per cent of the total of the 18 nations, and 4 per cent of the total exports of this country, according to Department of Commerce figures.

The total export business of the 18 principal nations, first eight months of this year, was \$28,385,700,000. Of this total, the United States exports were \$5,919,200,000, or approximately one-fifth of the total. Of the United States total exports, \$235,815,000 were automotive exports or approximately 4 per cent. Comparing the total \$28,385,700,000, being the total exports of the 18 nations, with the automotive exports of this country, \$235,815,000 the figures indicate that the automotive exports were slightly less than 1 per cent of the total.

Olds Plant to Resume

LANSING, Dec. 1.—The manufacturing division of the Olds Motor Works will reopen Dec. 6 after a shutdown of nearly a month, during which time inventory was taken and changes made in the assembly plant for the introduction of a new series of cars at the New York show.

"Gasogene" Vehicles Shown in France

WASHINGTON, Nov. 27—Six American firms exhibited trucks and buses at the second section of the Paris Automobile Salon, with French manufacturers representing the large majority of the exhibits, showing unusual strength of the domestic industry, a report to the Department of Commerce from the American trade commissioner at Paris states.

French manufacturers showed the attention they are giving to gasoline substitutes by the number of "gasogene" engines at the salon. The "gasogene" process usually employs charcoal or small wood blocks, burned in a small furnace attached to the truck beside the driver's seat. Gas is generated by this process and sent through a special carburetor into the engine cylinders, where it is exploded by an electric spark.

General Motors Insures Employees Cooperatively

NEW YORK, Nov. 26—General Motors Corp. has just purchased from the Metropolitan Life Insurance Co. what President Alfred P. Sloan, Jr., declares to be the largest group life insurance policy ever issued, in point of number of lives insured.

The policy covers all of the more than 100,000 employees of General Motors who have been on the payroll for three months or more, at \$1000 each. This will exceed \$100,000,000.

The insurance is payable at death to a designated beneficiary, or in event of total and permanent disability before the age of 60, to the insured in 20 equal monthly instalments.

The plan will be cooperative, the employees and General Motors sharing the cost.

Coming Feature Issues of Chilton Class Journal Publications

Dec. 10—Operation and Maintenance—Service Station Equipment Issue.

Dec. 15—Commercial Car Journal—Good Roads Issue.

Jan. 1—Automobile Trade Journal—Annual Show Issue.

Jan. 6—Motor Age—Annual Show Issue.

Jan. 15—Commercial Car Journal—New York Show Issue.

Jan. 27—Motor Age—Chicago Show Issue.

Government Hopes to Add 5000 Miles of Airways

WASHINGTON, Nov. 27.—With 6000 to 7000 miles of airways already in operation, the Federal government hopes to add about 5000 more miles before the end of the present fiscal year, William P. MacCracken, Jr., assistant secretary of commerce for aeronautics, declared in his annual report to the department just made public.

There were 3690 miles of air transport services in operation by private enterprises and 2665 miles by the Post Office Department on Jan. 1, 1926, Mr. MacCracken's report stated.

Stout Output Facilitated

DETROIT, Nov. 27—Stout metal airplane division of Ford Motor Co. has added 50 men and is now carrying on production in its new plant at Ford Airport with 150 workmen. With the new facilities it is expected to build the three-engined planes in two weeks.

U. of M. Gets \$78,000 by Guggenheim Gift

NEW YORK, Dec. 2—Appropriation of \$78,000 has been authorized by members of the Daniel Guggenheim Fund for the Promotion of Aeronautics, for the establishment of the Daniel Guggenheim professorship of applied aeronautics at the University of Michigan.

Of the appropriation, \$28,000 will be used to complete laboratory apparatus and to construct new testing and research instruments. The remainder of the appropriation will be paid in instalments of \$5000 a year over a period of 10 years for the establishment of the professorship.

President C. C. Little thanked the donors and in a statement on commercial aviation said:

"The field of commercial aviation has introduced a large number of problems which will require much investigation and research for their solution. The whole field of the economics of transportation as applied to the air has yet to be solved. The question is one of utmost importance today, involving not only engineering and scientific problems, but also those factors which determine successful and economic operation, and these latter in turn open up new problems for the engineer."

C. C. C. Reduces Dividend

BALTIMORE, Dec. 2—Commercial Credit Co. declared a quarterly dividend of 25 cents as against 50 cents paid in the three preceding quarters. Regular dividends on its preferred stocks were also declared. In a letter to stockholders, A. E. Duncan, chairman of the board, said the company was unwilling to continue to pay any dividend not fully earned. The total credited to surplus in the 10 months ended Oct. 31, was \$777,846 as compared with \$1,515,060 for the 1925 calendar year, he said.

Calendar of Coming Events

SHOWS	
Brussels	Dec. 4-15
Buenos Aires	Dec. 7-20
Ninth Argentine Automobile Show, Palermo Park.	
Cairo	Feb. 15-March 15
First International Motor Show.	
Chicago	Jan. 10-15
Coliseum, American Road Builders' Association.	
Chicago	Jan. 29-Feb. 5
National, Coliseum, National Automobile Chamber of Commerce, including special Shop Equipment Exhibit.	
Chicago	Jan. 29-Feb. 5
Annual Salon, Hotel Drake.	
Colombo	Jan. 6-16
All-Ceylon Motor and General Engineering Exhibition.	
Geneva	March 4-13
Palais des Expositions.	
Los Angeles	Feb. 12-19
Annual Salon, Hotel Biltmore.	
New York	Jan. 8-15
National, Grand Central Palace, National Automobile Chamber of Commerce, including special Shop Equipment Exhibit.	
Paris	Dec. 3-19
International Aeronautic Exposition, Grand Palais.	
Ponce, Porto Rico	Dec. 1-12

CONVENTIONS	
American Road Builders' Association, Congress Hotel, Chicago	Jan. 10-15
Automotive Electric Association, Electrical Service Meeting, Congress Hotel, Chicago	Feb. 1-2
Motor & Accessory Manufacturers Association, Dinner, New York	Jan. 12
National Association of Automobile Show and Association Managers, New York	Jan. 12
National Association of Automobile Show and Association Managers, Drake Hotel, Chicago	Feb. 3
National Automobile Dealers Association, Hotel Commodore, New York	Jan. 10-11
National Automobile Dealers Association, La Salle Hotel, Chicago	Feb. 1-3
Rubber Association of America, meeting and dinner, Hotel Commodore, New York	Jan. 10
N. A. C. C.	
Chicago, Feb. 1—Service Meeting.	
New York, Jan. 10-11—Third World Motor Transport Congress.	
New York, Jan. 11—Service Meeting.	
New York, Jan. 11—Banquet.	
S. A. E.	
Chicago Section, Dec. 14—Commercial Aviation—W. P. MacCracken, Jr.	

Detroit Section, Dec. 18.	
Detroit, Jan. 25-28—Annual Meeting.	
Detroit, Jan. 28—Carnival.	
Indiana Section, Dec. 9—Advantages of All-Steel Body, by Edward J. Baisley; Advantages of the Fabric Body, by H. Steinbrugg.	
Metropolitan Section, Dec. 18—Maintenance, Operation and Service, by Col. John Stilwell and T. L. Preble.	
New York, Jan. 13—Banquet.	
Pennsylvania Section, Dec. 14—What is Going on in Philadelphia?	
Southern California Section, Dec. 10—Latest Development in Aeronautics, by Donald W. Douglas and W. P. Kinner.	
Washington Section, Dec. 9—Cost of Motor Coach Operation in Washington, by Edward Pardee; Motor Coach Transportation, by G. E. Merrill.	
RACES	
Altoona, Pa.	June 11
Atlantic City	April 30
Charlotte, N. C.	May 9
Fresno, Cal.	April 21
Indianapolis	May 30
Los Angeles	Dec. 12
Los Angeles	Feb. 22
Los Angeles	April 10
Salem, N. H.	June 25